BY ORDER OF THE COMMANDER
HQ AIR FORCE FLIGHT TEST CENTER
(AFMC) EDWARDS AIR FORCE BASE CA 93524

AFFTC INSTRUCTION 11-1

3 January 2000

Flying Operations

AIRCREW OPERATIONS

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

OPR: 412 OSS/OSAA
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Certified by: 412 OG/CC (Col Dennis F. Sager)

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SUMMARY OF REVISIONS

This instruction has been negotiated with SPORT Air Traffic Controllers Organization. Table of Contents and Figures revised for Chapter 16. Attachment 7 reflects new abbreviations. Paragraph 1.7 added the Airfield Operations Board. Paragraph 2.3.1 adds the normal operating hours of the R-2508 Complex Military Operating Areas (MOAs) and joint use release of the airspace. Paragraph 2.4 defines scheduling procedures outside normal duty hours and clarifies when R-2515 will be released to the Federal Aviation Administration (FAA) for joint use. The Central Coordinating Facility (CCF) has the complete schedule of activities within the R-2508 Complex and communicates directly with the JOSHUA. Adds the CCF pager number for after hours notification for changes to airspace requirements. Chapter 3 was rewritten to include a new paragraph 3.3, Filing Flight Plans. Remaining paragraphs within Chapter 3 were renumbered. Paragraph 3.1 renames the Pancho One clearance to the Pancho Two and defines the Sage Two clearance. Paragraph 3.9.4 requires civil aircraft operating within R-2515 to have a Letter of Agreement or a Hold Harmless Agreement on file. Paragraph 4.11 Figure 4-9 corrected to show 10,000' MSL or above. Paragraph 5.6.3.1 corrects when opposite direction taxi is authorized. Figure 6-1 added defining Intersection Departures. Paragraph 6-9 defines Intersection Departures. Paragraph 8.1.1 and 8.5.1 changes AFFTCR 55-15 to AFFTCI 11-15. Paragraph 9.4.3.2.1 corrects the Los Angeles ARTCC DSN phone number. Chapter 10 revised to reflect the Inyokern Transition Area and paragraph 10.4.13 has the correct coordinates and new blasting hours for the gold mine south of Ballarat. Paragraph 13.12 explains Alternate Control Tower Procedures. Paragraph 13.18.6 added listing restriction (BASH) for operations to NAS Pt Mugu. Paragraph 13.23 reclassifies the Inyokern Corridor to the Inyokern Transition Area and specifies the hours the Transition Area is active. Paragraph 13.25 added which defines Weather Recall Areas used by SPORT and the FAA to recall airspace due to severe weather in the

National Airspace System (NAS). Chapter 16 has been extensively modified to reflect the operations of Marine Air Group 46 (MAG 46) Detachment B (Det B). A revision is shown with a bar (|).

Chapter 1

INTRODUCTION

1.1. Policy.

1.1.1. This instruction sets policies and prescribes standard operational procedures for all aircrews assigned to or sponsored by Edwards Air Force Base (AFB). This instruction takes precedence over conflicting local directives. Squadron commanders, supervisors, and aircrews will ensure compliance with this instruction.

1.1.2. Participating aircrew members will plan and brief every flight event (para 5.3). Any event not planned and briefed is prohibited. This policy is specifically applicable to test points, formation, intercepts, and air combat maneuvering/tactics. Should another person or aircraft instigate any unauthorized events, you will not participate and will, by the most safe and expedient method, continue with the planned mission.

1.1.3. Aircrews not assigned or attached to Air Force Flight Test Center (AFFTC) for flying (e.g. National Aeronautics & Space Administration (NASA), etc.) may develop their own procedures (forms, maintenance, cross-country, etc.), but must comply with directives on airfield movement, control, and flight in the local area.

1.1.4. Procedures outlined are for normal situations. During emergencies or unusual circumstances, there is no substitute for sound judgment. The aircraft commander is ultimately responsible.

1.1.5. Before flying in the R-2508 Complex, all aircrews, including Temporary Duty (TDY) aircrews (tanker support), will receive an airspace/operations briefing (see attachment (atch) 4, Aircrew Local Area Briefing). Obtain briefing from one of the following agencies:

1.1.5.1. Appropriate Flight Test Squadron (FLTS) Operations Officer (DO) or designated representative.

1.1.5.2. United States Air Force Test Pilot School (TPS) DO .

1.1.5.3. 412th Operations Support Squadron’s Airspace Manager (412 OSS/OSAA).

1.1.5.4. R-2508 Central Coordinating Facility (CCF) representative.

1.1.6. Air Refueling (AR) support from TDY aircraft will land at Edwards and receive a local area operations brief prior to conducting refueling operations within R-2508.

1.2. Flight Aids.

1.2.1. Pilots and navigators will carry a local area map and 412th Operations Group (OG) Inflight Guide. The aircraft commander ensures aircraft publications including Flight Information Publications (FLIP) are adequate for the flight.

1.2.2. The 412 Operations Group Standardization/Evaluation Office (412 OG/OGV) publishes and maintains currency of the Inflight Guide containing applicable material for in-flight reference, as desired. Flying units may supplement the Inflight Guide with individual aircraft or mission reference material. Units supplementing the basic Inflight Guide will enter the following on each card: (A/C or MSS) Supplemental data. (OPR): (DATE):

1.2.3. Coordinate each supplemental aircraft reference card with the senior flight examiner and send to 412 OG/OGV to maintain as a reference file. Coordinate supplemental mission reference cards with the unit operations officer and send to 412 OG/OGV. The OP is responsible for keeping the reference cards current.

1.3. Checklist Policy.

1.3.1. The aircraft commander is responsible for proper checklist use.

1.3.2. AFFTC has numerous aircraft with extensive Class II modifications. Each aircrew is responsible for using the proper checklists.

1.3.3. Flight Test Cards (Checklists):

1.3.3.1. Flight test cards must be used for all medium and high risk tests and are normally used for all tests. Document exceptions in the Test Safety Plan. Unmanned vehicle technical order checklists may fulfill this requirement if so determined by the appropriate flight test squadron commander.

1.3.3.2. Flight test cards are prepared jointly by the project engineer and project pilot.

1.3.3.3. The FLTS commander reviews and approves test cards before the flight. Medium and high risk test cards are reviewed by the Commander (CC) 412 OG. Medium risk cards are signed by 412 OG/CC, high risk cards are reviewed and signed by the Commander, 412th Test Wing (412 TW/CC). Changes are approved in the same manner. Flight test cards are command and response. You may combine the cards with the test card or operations orders or make it a separate entity as conditions warrant. Tailor the contents of the flight test cards to the exact nature and circumstances of the particular tests. Personnel preparing the flight test cards must carefully weigh the relationship between it and the normal technical order checklist. In general, the flight test cards should not replace or be redundant to the technical order checklist. Unusual situations, such as aircraft's first flight, may dictate that all or part of the technical order (TO) checklist be made a part of the flight test cards. Flight test cards should cover test peculiar items critical to safety, such as:

1.3.3.3.1. Aircraft/vehicle limitations, such as Mach number, airspeed, angle of attack, sideslip angle, altitude, load factor, center of gravity limits, etc.

1.3.3.3.2. Aircraft/vehicle store loads and software configuration.

1.3.3.3.3. Test configurations, like gear, flaps, etc.

1.3.3.3.4. Fuel status and feed.

1.3.3.3.5. Special test equipment use.

1.3.3.3.6. Special safety devices use.

1.3.3.3.7. Telemetry (TM) use.

1.3.3.3.8. Test conditions.

1.3.3.3.9. Data systems use.

1.3.3.3.10. Go-no-go decision criteria.

1.3.3.4. Unmanned vehicle TO checklists may fulfill the Flight Test Card requirement if so determined by the appropriate flight test squadron commander. These cards will be prepared by the project engineer and project pilot equivalent.

1.3.4. Command and response should normally be between the test controller and the test pilot or equivalent for unmanned flights. The same team member may start both the command and the response on certain items, but the other members will verbally verify.

1.4. Aircraft And Aircrew Security. .

1.4.1. Establishes responsibility and procedures for all 412 TW personnel to assist in safeguarding TW aircraft at Edwards and TDY locations. Each supervisor and worker in every flight line activity (e.g. maintenance, operations, engineering) is responsible for safeguarding the aircraft against theft, damage, and compromise of classified materials. Flight line personnel should be alert to theft prevention and should challenge unidentifiable personnel.

1.4.1.1. Personnel will be alert for the following examples of unusual activity.

1.4.1.1.1. Chock removal without engines running and no apparent intent to tow the aircraft.

1.4.1.1.2. Engine being started without fire guard.

1.4.1.1.3. Unidentified individuals around aircraft dressed in other than flying or work attire.

1.4.1.1.4. Intoxicated individuals.

1.4.1.1.5. Absence of flight line area badges.

1.4.1.2. Approach and question any individual when doubt exists that the individual should be around the aircraft or on the ramp. If doubt still exists, immediately notify supervisor, base operations, or security police, depending on the existing situation.

1.4.1.3. Non-United States Air Force (USAF) bases. Aircraft Commanders (AC) will survey aircraft parking areas for adequate security control. The airdrome management organization will be contacted to determine local security practices. The AC will determine the need for posting crewmembers as security guards during periods in which the aircraft is unattended by operations or maintenance personnel.

1.4.2. Anti-hijacking. Air Force Instruction (AFI) 13-207, *Preventing and Resisting Aircraft Piracy (Hijacking)*, establishes responsibilities and procedures for all personnel to cope with acts of unlawful aircraft seizure and mission interference both on the ground and in flight. The primary concern must be prevention of loss of life, secondarily, the prevention of loss of aircraft.

1.4.2.1. Prevention. Procedures outlined in AFFTC Operations (Ops) Plan 125-37 and AFI 13-207 apply to hijacking. Since prevention is the most satisfactory method of dealing with the problem, security measures shall be followed at all times.

1.5. Chase Requirements.

1.5.1. Chase aircraft will accompany all flights in the categories below. Assign chase aircraft and pilots to these flights on a priority basis. Make every effort to avoid delaying flights requiring chase.

1.5.1.1. Flights on research aircraft.

1.5.1.2. Flights on aircraft of unusual or radical design.

1.5.1.3. First flight of a new model aircraft.

1.5.1.4. Flights of any test aircraft as specified by Air Force Flight Test Center Regulation (AFFTCR) 127- 3, *Safety Review Board (SRB)* action.

1.5.1.5. Flights requiring observation from another aircraft to obtain data.

1.5.1.6. Flights where cockpit duties prevent carrying out the "see and avoid" criteria.

1.5.1.7. As desired by contractor or test director.

1.6. Deviations.

1.6.1. Coordinate all deviations/waiver requests for this instruction through the AFFTC Safety Office. The 412 OG/CC approves changes or waivers.

1.7. Airfield Operations Board.

1.7.1. The Airfield Operations Board (AOB) is a forum for discussing, updating, and tracking various activities in support of the wing flying mission. The AOB will convene at least quarterly. Agenda items will be IAW AFI 13-203.

1.7.2. At a minimum, the AOB will be composed of the following members:

1.7.2.1. 412 OG/CC (Chairman)

1.7.2.2. AFFTC/SEF

1.7.2.3. 412 OG/OGV

1.7.2.4. 412 OSS/CC/OSA/OSAT/OSAM/TERPS/OSAR/OSAA/OSW

1.7.2.5. Flying Squadron Representatives

1.7.2.6. MAG 46 Detachment B

1.7.2.7. Aero Club Representative

1.7.2.8. 95 CS Representatives (to include ATCALS Maintenance)

1.7.2.9. 95 CEG Representatives

1.7.3. Additionally, the following agencies are encouraged to attend:

1.7.3.1. FAA TRACON

1.7.3.2. FAA ATREP

1.7.3.3. 410 FLTS Representative

1.7.4. All other interested agencies are invited to attend as well, contact 412 OSS/OSA for details.

1.8. Recommended Changes.

1.8.1. Send change recommendations to 412 OSS/OSAA

Chapter 2

ADJACENT AIRSPACE PROCEDURES

2.1. Local Flying Area.. (Fig 2-1).

2.1.1. This figure depicts the AFFTC local flying area where flights originating from Edwards may be expected to operate.

2.2. R-2508 Complex.

2.2.1. The R-2508 Complex has two (2) types of special use airspace, Restricted Areas (Fig 2-2) and Military Operating Areas (MOAs) (Fig 2-3), as well as Air Traffic Control Assigned Airspace (ATCAA) (Fig 2-4). R-2508 extends from Flight Level (FL) 200 to an unlimited altitude. The internal restricted areas (R-2502, R-2515 and R-2524) extend from the surface to an unlimited altitude while R-2506 extends from the surface to 6,000' mean sea level (MSL). The MOAs and ATCAAs combine with these restricted areas to increase usable airspace.

Figure 2.1. AFFTC Local Flying Area.

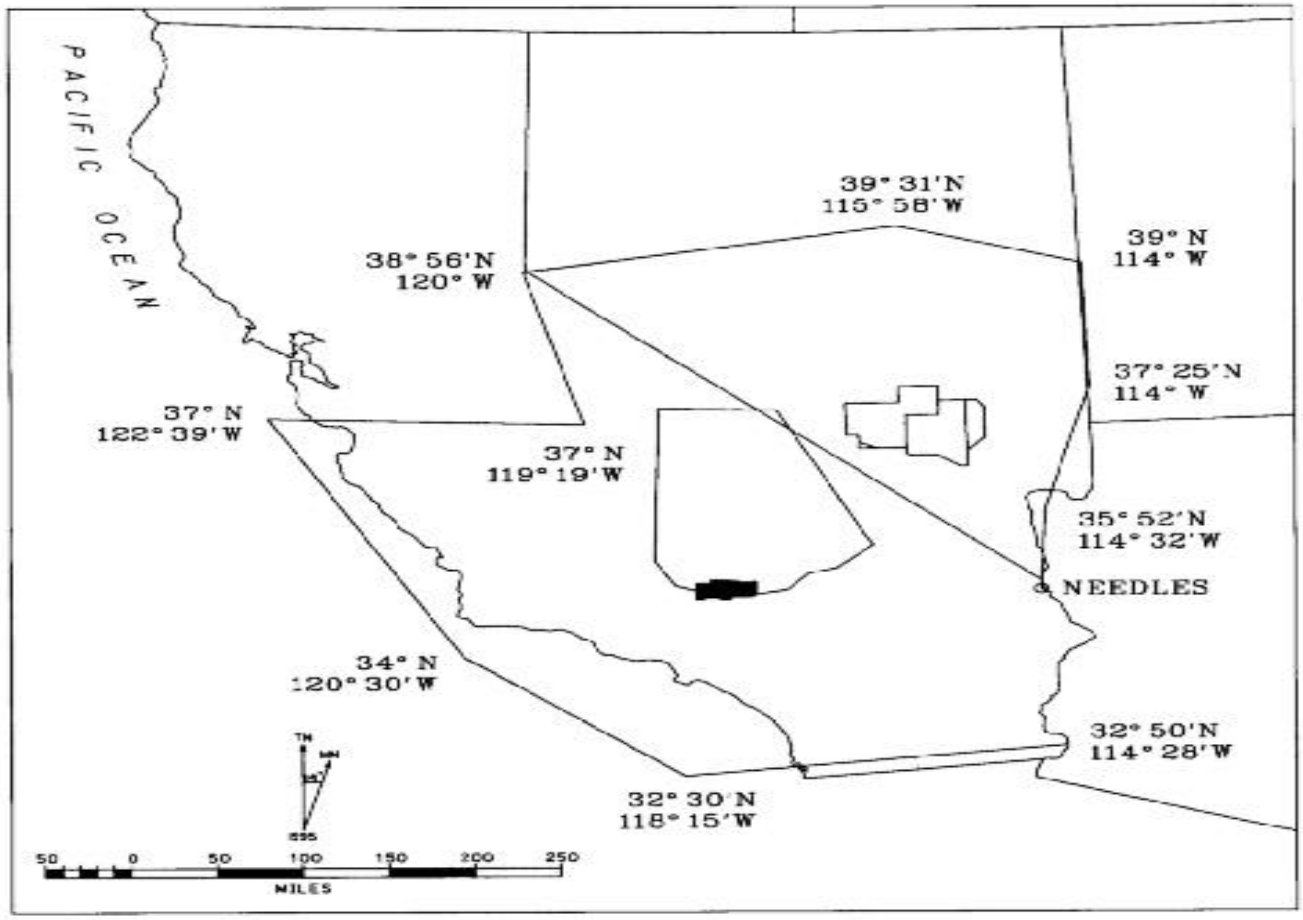
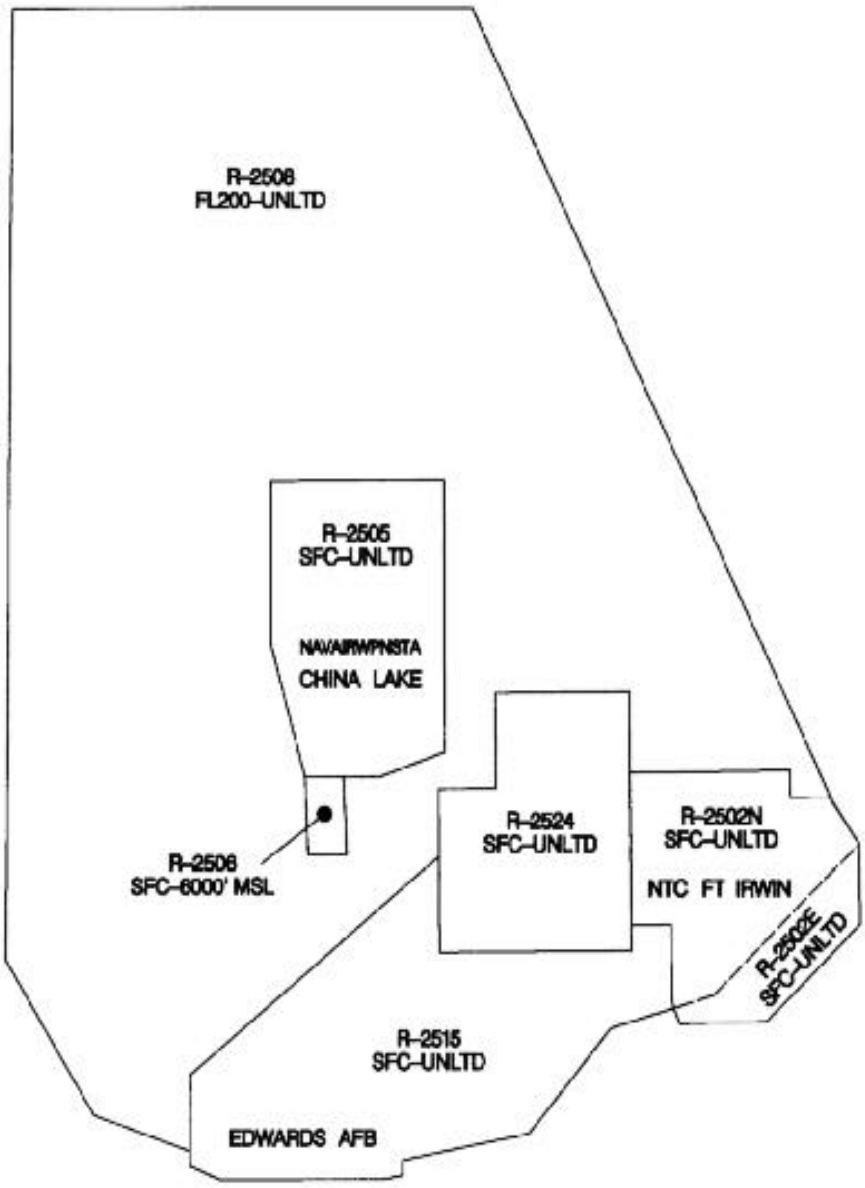


Figure 2.2. Restricted Areas Vertical Dimensions



2.2.2. Upper Boundaries. Other than the restricted areas mentioned above, when R-2508 has been released for joint use, the combination of MOAs and ATCAAs are capped at FL600. The Bishop MOA is capped below FL180. The Owens ATCAA overlies the Bishop MOA.

2.2.3. Lower Boundaries. Internal restricted areas extend to the surface. The MOAs of the four main Work Areas, Isabella, (excluding Inyokern Transition Area when active) Owens, Saline, and Panamint, and Barstow, Buckhorn and Shoshone, have a lower boundary of 200' above ground level (AGL). Bakersfield and Porterville have lower boundaries of 2,000' AGL.

Note: Explanation of the Inyokern Transition Area located within the Isabella MOA is found in Chapter 13, Restrictions.

Figure 2.3. Military Operation Areas (MOAs) Vertical Dimensions Below 18,000 Feet.

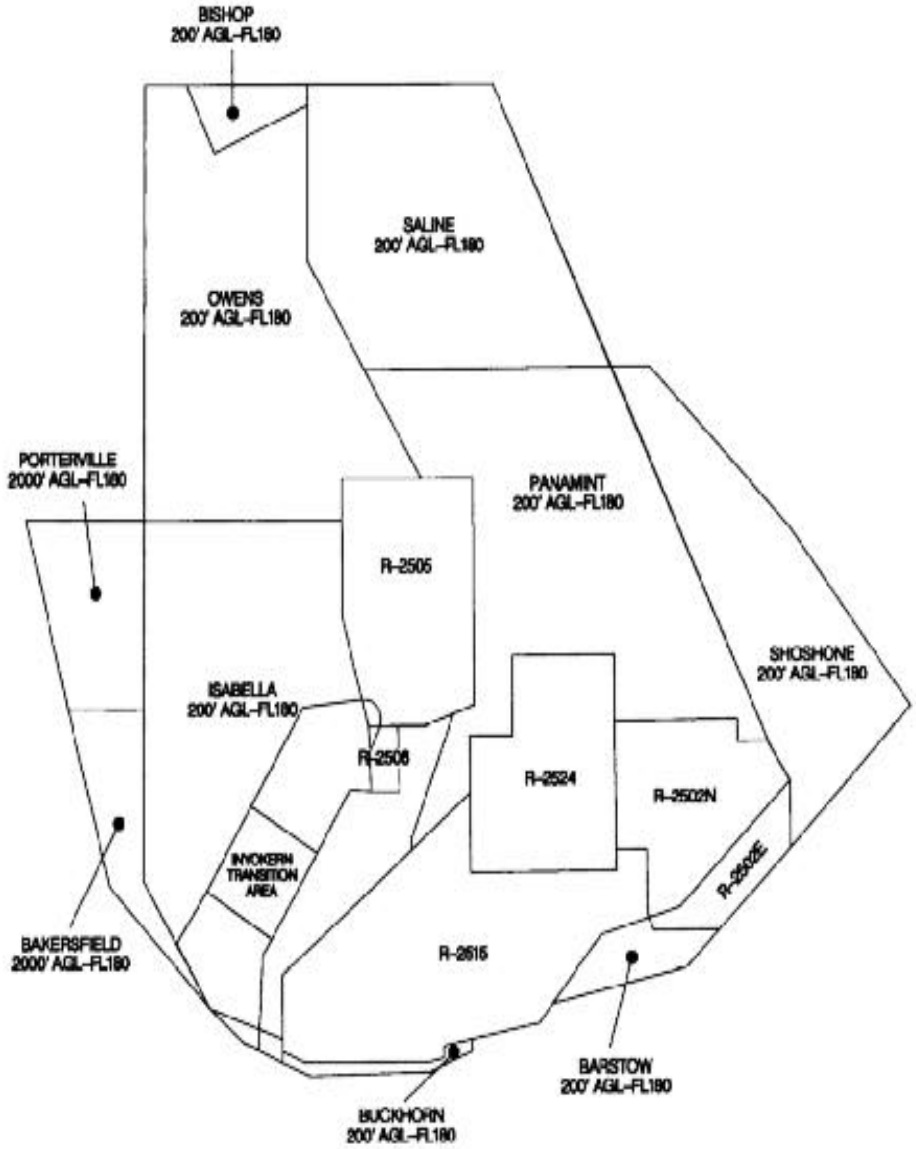
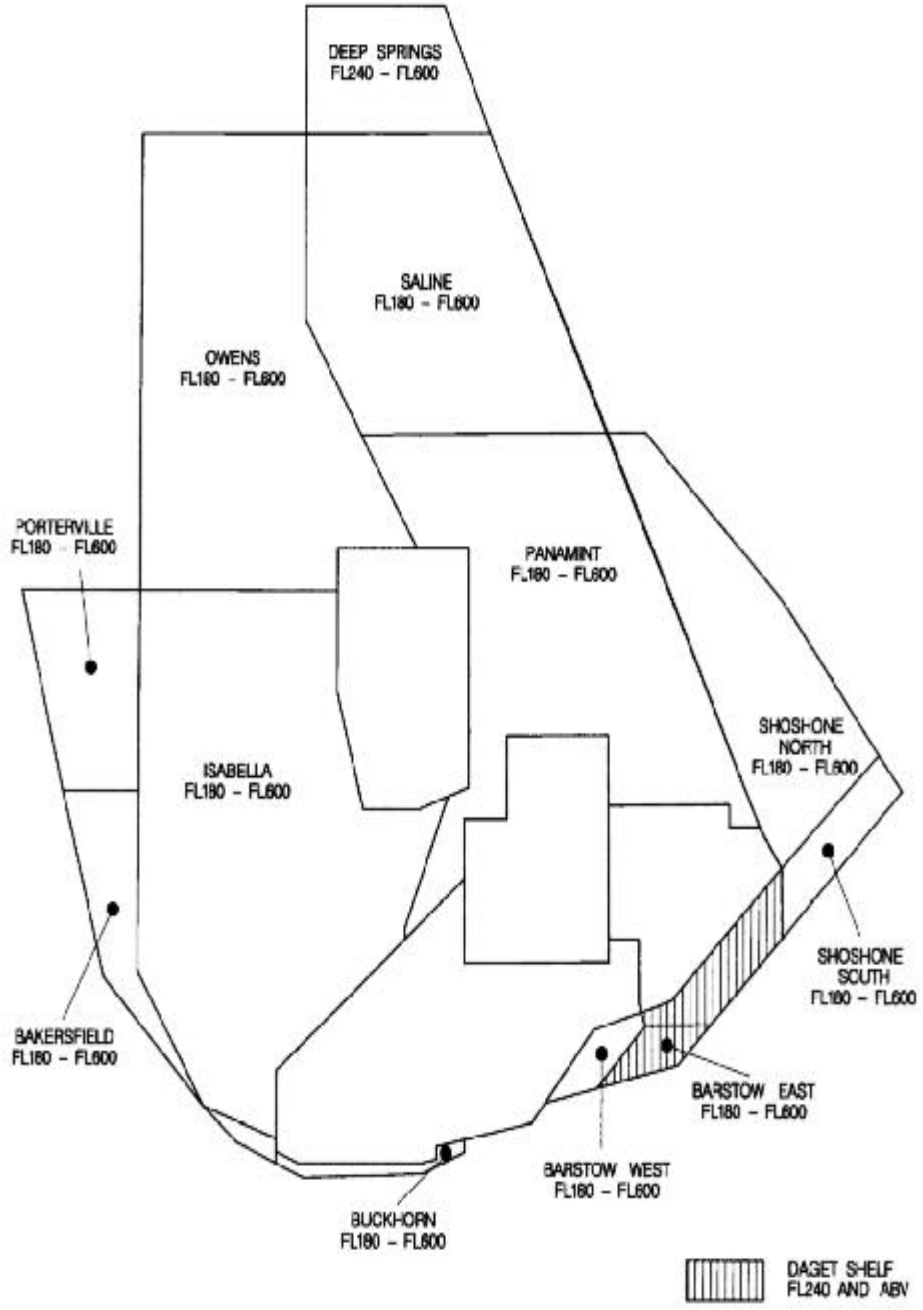


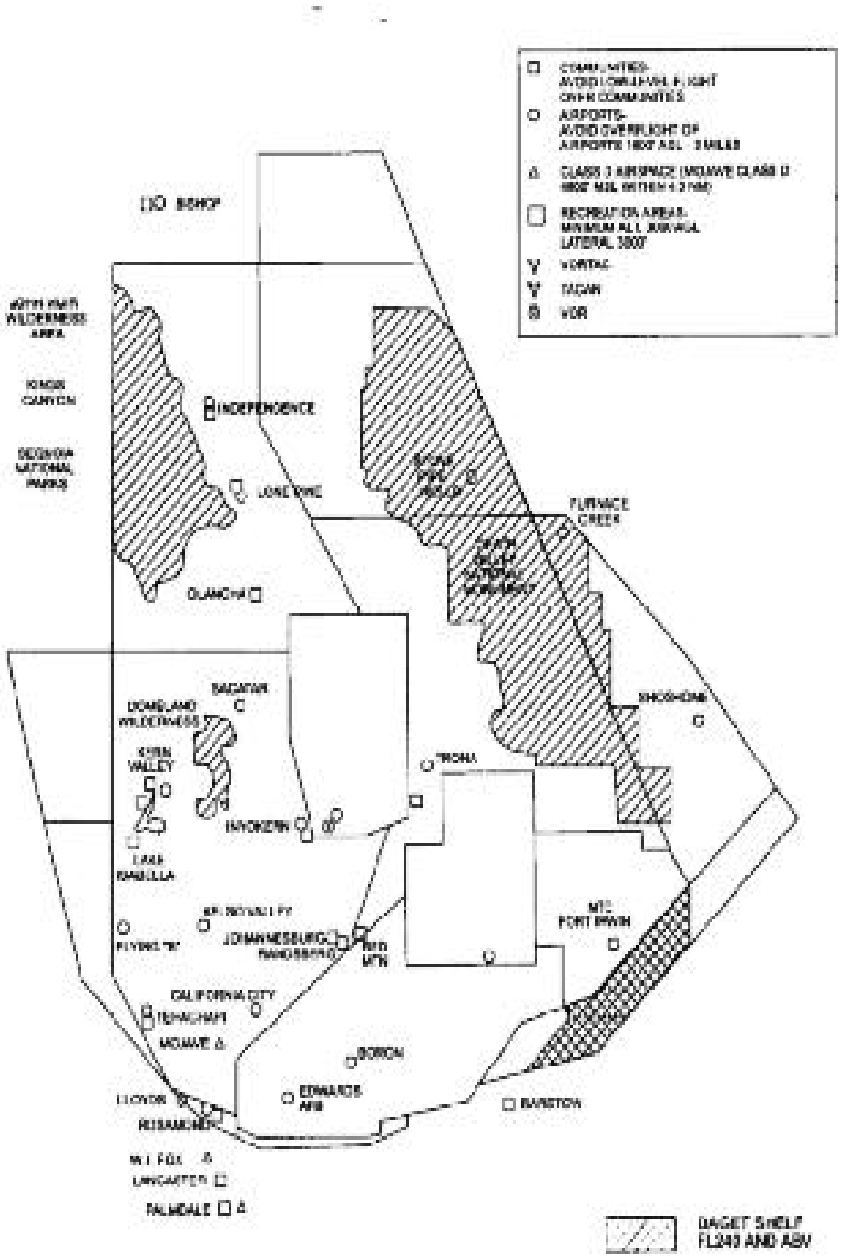
Figure 2.4. Air Traffic Control Assigned Airspace (ATCAA) Vertical Dimensions FL180 and Above.



Note: Portions of these work areas overlie wilderness areas, national parks and national monuments. Flight in these areas is restricted to at or above 3,000' AGL or 3,000’ lateral.

2.2.4. Exceptions (Fig 2-5):

Figure 2.5. Communities, Airports and Recreation Areas.



2.2.4.1. National Parks Domeland and John Muir Wilderness Areas, Yosemite, Kings Canyon, and Sequoia National Parks, as established in 1977, lie within and northwest of R-2508. Overflights of these national parks are restricted to altitudes for mission accomplishment but no lower than 3,000’ AGL or 3,000’ lateral. Plan missions to avoid overflight of national parks to the maximum extent.

2.2.4.2. Death Valley National Park. The boundaries of Death Valley, as established in 1977 and prior to its designation as a National Park, are particularly sensitive and will be avoided except for mission essential overflight. In the area within the actual Death Valley, conduct overflight at 3,000’ AGL or higher. Within the recently expanded area in the Panamint Valley, overflight is authorized down to 200’ AGL.

2.2.4.3. Work Areas do not include airspace below 1,500' AGL within three (3) nautical miles (NM) of any uncontrolled charted airport.

2.2.4.4. R-2502E and the eastern half of Barstow Work Area are separated vertically at FL230 (Figs 2-4 or 2-5). The area at or below FL230 is available for normal R-2508 operations. The area at or above FL240 is known as the Daggett Shelf and requires a 10 minute advance notification to the Federal Aviation Administration (FAA) prior to use. This notification is processed through either the FAA High Desert Terminal Radar Approach Control (TRACON) facility (callsign JOSHUA) or AFFTC’s Radar Control Facility (RCF) (callsign SPORT).

2.2.4.5. Owens and Saline are separated vertically at FL290. The area at or below FL290 is available for normal R-2508 operations. Higher altitudes will be issued on request. JOSHUA requires a 10 minute advance notification to coordinate airspace requirements above FL290 with adjacent FAA centers.

2.2.5. Types of Traffic to Expect in Various Areas:

2.2.5.1. R-2515. Extensive flight test activity at all altitudes is conducted on Cords Road, a line from Mojave to Barstow Work Area five to ten miles north of Highway 58. Expect numerous helicopters, pipeline, or power line patrol aircraft below 1,000' AGL along Highways 58 and 395.

2.2.5.2. Isabella Work Area (excluding the Inyokern Transition Area when active). Used by AFFTC, TPS, and ingress/egress routes to Superior Valley and R-2524 at all altitudes. Expect general aviation traffic below 18,000' MSL transiting north and south between Rosamond, through Fremont (Koehn Lake) and Owens Valleys to Bishop and Trona, California. Tankers and receivers may be in the Isabella refueling area.

2.2.5.3. Owens and Saline Work Areas. Naval Air Stations (NAS) Lemoore and Fallon aircraft use these work areas for air combat maneuvering (ACM) and training. General aviation below 18,000' MSL and commercial Instrument Flight Rules (IFR) traffic transiting at or above FL310 on J-110.

2.2.5.4. Panamint and Shoshone Work Areas. These are the primary ACM areas for aircraft using the Electronic Combat Range in R-2524.

2.2.5.5. R-2505. China Lake aircraft use R-2505 and all surrounding areas within 20 miles of R-2505.

2.2.5.6. Review the airway structure surrounding the R-2508 Complex to be aware of high density traffic areas.

2.3. Airspace Normal Operating Hours. .

2.3.1. Restricted Area R-2508's hours of operation are 0600 to 1800L (local) and the MOAs/ ATCAAs 0600L to 2200L Monday through Friday. Airspace operating hours are extended as necessary to accommodate properly scheduled military activities, however the airspace may be released earlier for joint use when not scheduled.

2.3.2. JOSHUA operates 24 hours per day and SPORT is normally 0600 to 2000 Monday-Friday or as required for AFFTC mission support.

2.4. Use Of Restricted Airspace And MOAS During Other Than Normal. Times.

2.4.1. Follow procedures outlined in AFFTCI 11-15 to ensure airspace availability outside normal hours.

2.4.2. Outside normal duty hours, Project Managers shall contact the CCF (pager: (800) 805-2851) for revisions to airspace requirements. When the airspace has been released to the FAA it requires two (2) hours advance notification to activate the MOAs and 15 minutes to regain use of restricted area(s).

2.5. Restricted Airspace.. (Fig 2-2).

2.5.1. The R-2508 Complex has a number of internal restricted areas. R-2508 is shared use airspace; individual restricted areas within the boundary of R-2508 require prior approval with the using agencies for entry. These restricted areas and their using agencies are:

2.5.1.1. R-2502N (Sfc to unlimited)National Training Center (NTC), Ft Irwin CA

2.5.1.2. R-2502E (Sfc to unlimited)NTC, Ft Irwin CA

Note: R-2502E is normally capped at FL230 (Daggett Shelf)

2.5.1.3. R-2505 (Sfc to unlimited) Naval Air Warfare Center Weapons Division (NAWCWD), China Lake CA

2.5.1.4. R-2506 (Sfc to 6,000') NAWCWD, China Lake CA

2.5.1.5. R-2515 (Sfc to unlimited) AFFTC, Edwards AFB CA

2.5.1.6. R-2524 (Sfc to unlimited) NAWCWD, China Lake CA

2.5.2. Schedule access to these restricted areas through Center Scheduling (7-4110). The using agencies pass overflight altitudes to JOSHUA and SPORT on a daily basis. Obtain air traffic control (ATC) clearance for overflight from JOSHUA or SPORT.

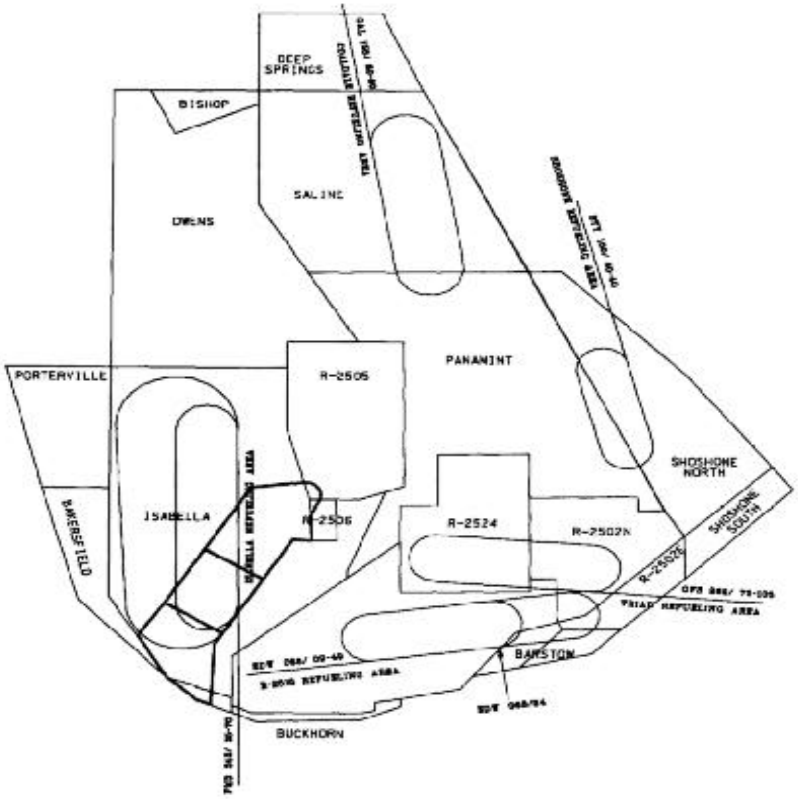
2.6. Military Operating Areas (MOAs).

2.6.1. Figure 2-3 depicts the R-2508 Complex MOAs.

2.7. Air Traffic Control Assigned Airspace (ATCAA).. (Fig 2-4).

2.7.1. The R-2508 Complex ATCAAs fill the airspace gap between the top of the MOAs (FL180) and the base of R-2508 (FL200). When R-2508 is inactive, the ATCAAs extend upward to FL600. ATCAAs are situated above the Complex MOAs and those outside the lateral boundaries of R-2508 to afford additional work areas up to FL600. Deep Springs is formed solely of ATCAA airspace from FL240 to FL600.

Figure 2.6. R2508/R2515 Refueling Areas.



2.8. Refueling Areas. (Fig 2-6)

2.8.1. R-2508 Refueling Areas.

2.8.1.1. Coaldale (OAL) Area. OAL 155/60 (37×00’N, 117×33’W) to OAL 155/90 (36×31’00”N, 117×27’00”W). Do not go east of the OAL 143 Radial (R). Outbound on the OAL 155R, left turns.

2.8.1.2. Shoshone Area. Beatty (BTY) 150/60 (35×50’00”N, 116×26’00”W) to BTY 150/40 (36×09’30”N, 116×32’00”W). Inbound on the BTY 150R, left turns.

2.8.1.3. Isabella Area. Palmdale (PMD) 345/35 (35½13’N, 118½04.5’W) to PMD 345/75 (35½53.3’N, 118½04.8’W). Minimum refueling altitude 15,000' MSL.

2.8.2. AFFTC Air Refueling Areas.

2.8.2.1. Triad Area. (R-2524, R-2502). Schedule in advance for deconfliction with R-2502N, R2502E, and R-2524. Goffs (GFS) 262/105 (35½18.5’N, 117½17.9’W) to GFS 262/75 (35½15.9’N, 116½41.1’W).

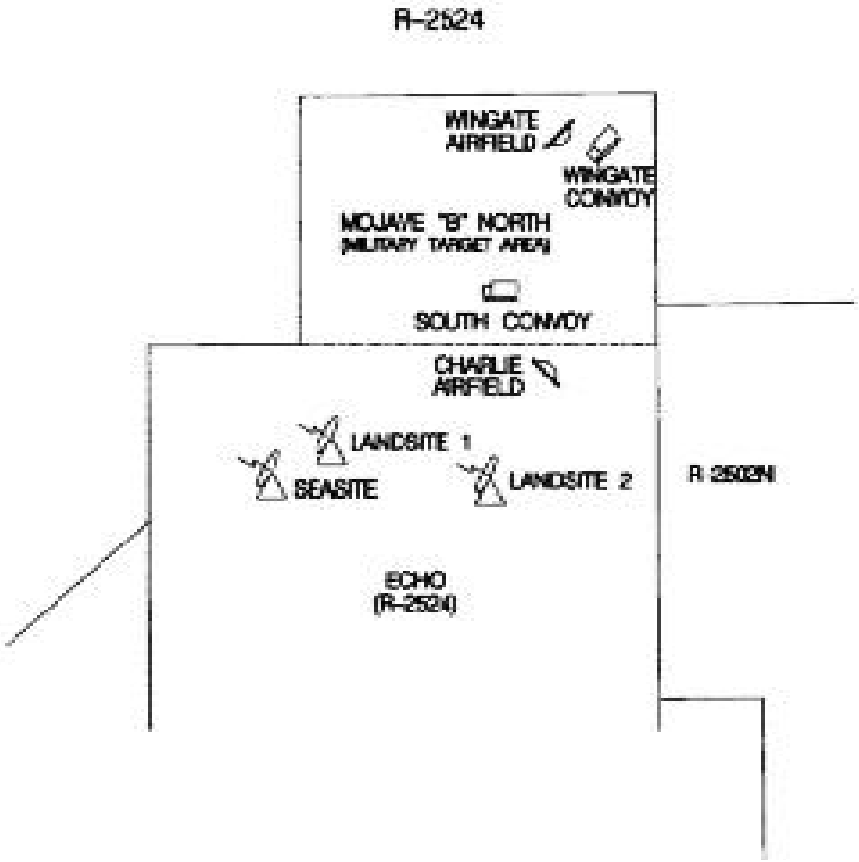
2.8.2.2. R-2515 Area. Edwards (EDW) 068/09 (35½00’N, 117½32.5’W) to EDW 068/49 (35½05’N, 116½44.7’W).

2.8.2.3. R-2515 Modified Area**.** Used when refueling altitude is below overflight altitudes for R-2502, and R-2524. EDW 068/09 (35½00'N, 117½32.5'W) to EDW 068/34 (35½04'N, 117½03'W). Remain west of R-2502 and south of R-2524 (Remain south of EDW 052/38).

Figure 2.7. Electronic Combat Range

2.9. Electronic Combat Range (ECR) R-2524. (Fig 2-7)

Figure 2.7. Electronic Combat Range.



2.9.1. R-2524 airspace may be scheduled for overflight after-hours or for Friday-Sunday operations but will be released for joint-use if not scheduled during ECR working hours. Overflight approvals for R-2524 do not include Superior Valley or R-2524 airspace may be scheduled for overflight after-hours or for Friday-Sunday operations but will be released for joint-use if not scheduled during ECR working hours. Overflight approvals for R-2524 do not include Superior Valley or using flare or ordnance. Specific approval for these operations must be obtained when scheduled. The type of airspace activity other than transit (i.e. Remotely Operated Aircraft (ROA) support, refueling, etc.) must be specified. The instrument range supports Research and Development Operational Test and Evaluation, Radar Warning Receiver (RWR) systems, Anti-Radiation Missile (ARM) systems, and Electronic Warfare (EW) Training. Most ECR missions require full use of R-2524.

2.9.2. During normal working hours, China Control Military Radar Unit (MRU) may approve real-time overflights above 8,000' MSL on a not-to-interfere basis. Real-time use of the airspace must be requested through SPORT who in turn will coordinate with China Control for final approval.

2.9.3. China Lake controls R-2524 which encompasses the ECR, Superior Valley, and the B2 North target area. Forward requests to use these areas to 412 OSS/OSCS for coordination IAW AFFTCR 55-15. China Lake allocates range periods on request and offers alternate times if requested times are not available. Designated impact ranges are noninstrumented and unmanned. R-2524 airspace is available for scheduling on most Fridays and weekends. Schedule weekend requirements before noon Thursday.

2.9.4. ECR/R-2524, commonly referred to as “Echo Range.” Primary use is as an electronic countermeasures range which normally includes all of R-2524. Overflights would be approved on a non-interference basis. Area coordinates are:

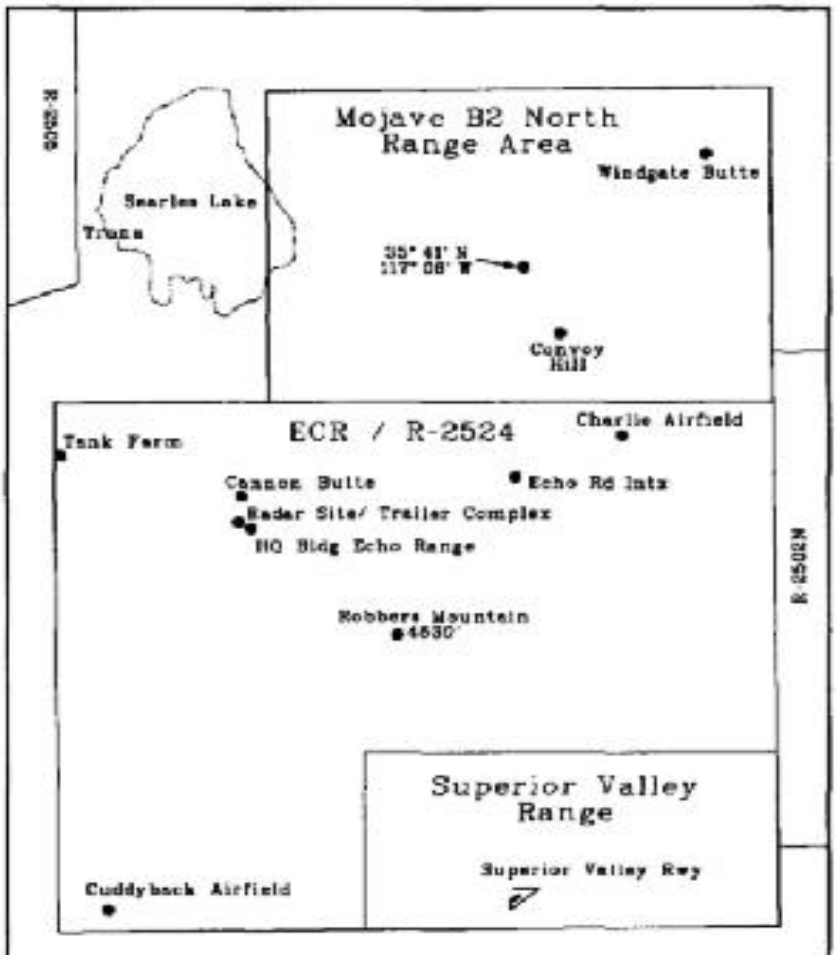
35°36’00”N	116°55’23”W
35°25’00”N	116°55’23”W
35°25’00”N	117°26’03”W
35°36’00”N	117°26’03”W

Mojave B2 North target area. Located in the northern third of R-2524, this area contains two convoy targets and a simulated airfield with aircraft targets for use with inert ordnance only. Use of Mojave B2 North must be specifically scheduled and is approved on a space available basis. Area coordinates are:

35°47’46”N	116°55’23”W
35°36’00”N	116°55’23”W
35°36’00”N	117°16’55”W
35°47’46”N	117°16’55”W

2.10. R-2524 Mojave B2 North Range Area. (Fig 2-8).

Figure 2.8. Mojave B2 North Range Area.



2.10.1. Air-to-ground gunnery, rocket firing, external stores separation, and tank jettison are authorized. Plan all operations to impact north of 35½39'N and east of 117½10'W.

2.10.2. Contact China Control (301.0) before entering R-2524. After check-in and discrete code assignment, China Control will transfer mission to Echo Control (381.9) until mission completion. Final check-out will be with China Control.

2.10.3. Obtain clearance to expend ordnance on Mojave B2 North from Echo Control. Upon mission completion, advise Echo Control of the number of rounds and/or ordnance expended.

2.10.4. Expend no explosive ordnance devices within R-2524. Ordnance is limited to 20mm and 30mm inert rounds with tracers. Other ordnance will be considered on a case-by-case basis for approval by NAWC. The impact areas are easily accessible to the public; therefore, make a dry run to check the range surface clearance before starting operations.

2.10.5. Air-to-Ground Weapons Firing and Release:

2.10.5.1. Strafe at 30o or greater dive angles. Minimum pullout altitude is 1,500' AGL. These restrictions do not prevent gun firing for other reasons such as gas ingestion, vibration analysis, etc., at less than 30o dive angles, provided you observe the 1500' AGL minimum pullout altitude.

2.10.5.2. Low angle releases of bombs, rockets, or missiles are restricted to a 300' AGL minimum pullout altitude. High angle releases will adhere to the aircraft -34 handbook guidance; however, the minimum pullout altitude will not be less than 1,500' AGL.

2.10.5.3. Specify in the appropriate test plan tests requiring waiver from restrictions for approval through the Test Safety Review coordination cycle.

2.10.6. Air-To-Air Procedures.

2.10.6.1. 412 OSS/OSCS requests overflight of R-2524 to transit the area across Cuddeback Lake to the Mojave B2 North Range Area to facilitate target deployment enroute to the range. Clearance to transit R-2524 is clearance to deploy the tow target at tow pilot's discretion. See Chapter 14 for towing aerial targets.

2.10.6.2. Prior to entry into R-2524, contact China Control. After check-in and discrete code assignment, China Control will transfer mission to Echo Control. Final Check-out will be with China Control.

2.10.6.3. Obtain clearance to expend ordnance on Mojave B2 North from Echo Control for all missions. Upon mission completion, advise Echo Control of the number of rounds expended.

2.10.6.4. Make a low level sweep of the range and a transmission on guard before commencing range operations. All ordnance must fall within the ground confines of the Mojave B2 North Range Area. No ordnance is to fall south of 35½36’N.

2.10.6.5. Circular (Clockwise/Counter Clock-wise), Figure 8 (Fig 2-9) (Level and Climbing/ Descending), and Butterfly Dart (Fig 2-10) air-to-air gunnery tow patterns may be flown on Mojave B2 North Range Area:

Figure 2.9. Figure Eight Dart Pattern.

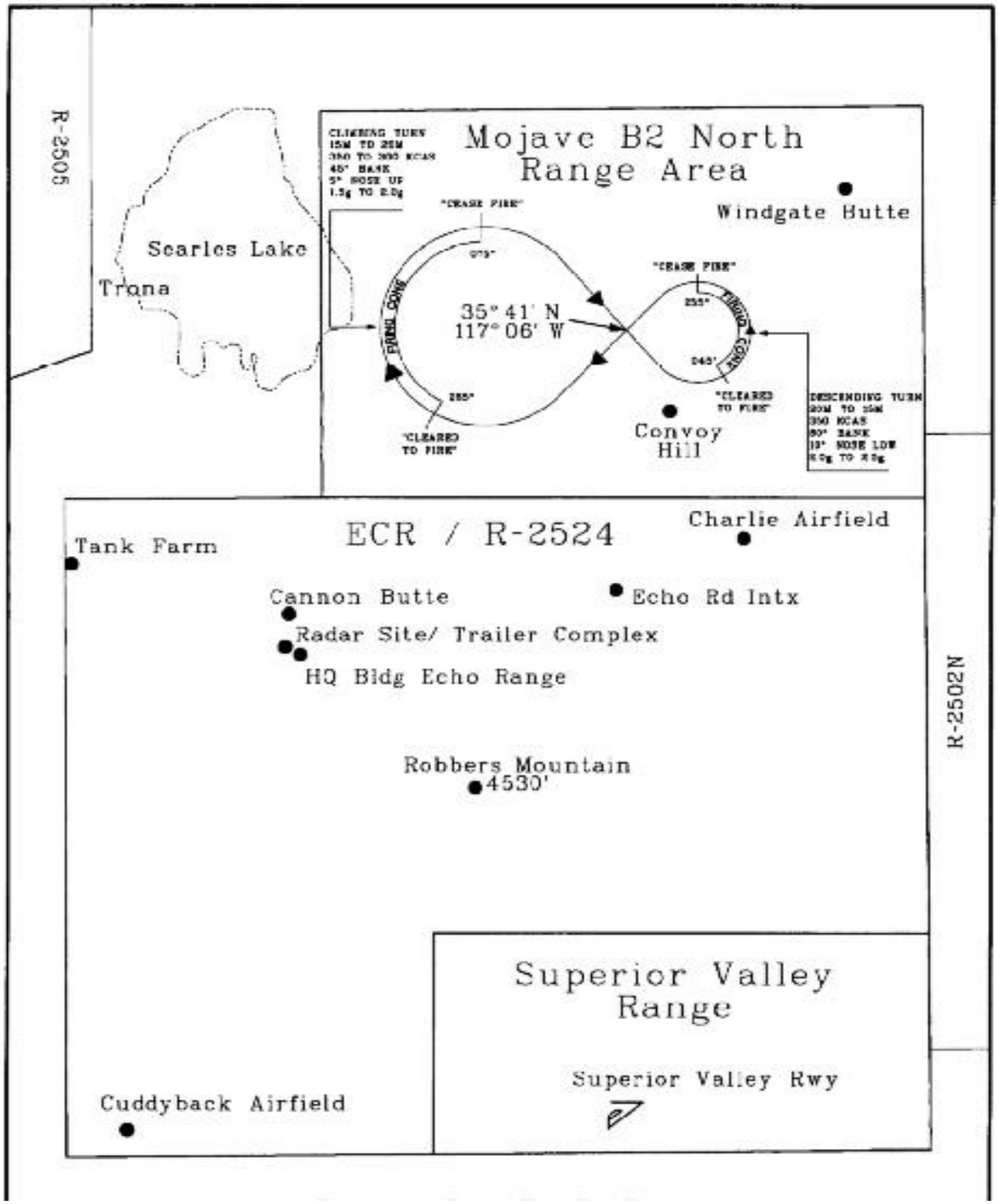
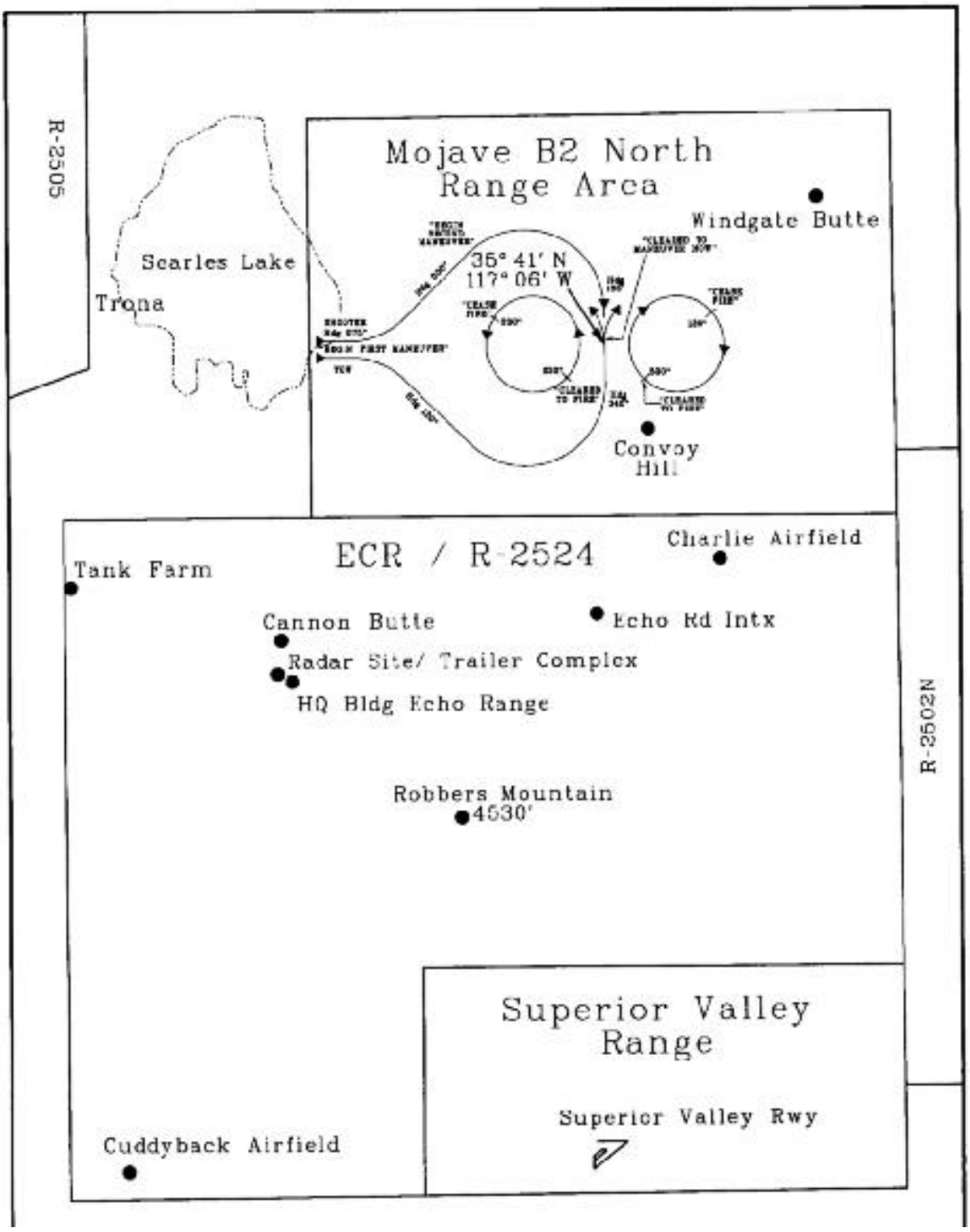


Figure 2.10. Butterfly Dart Pattern.

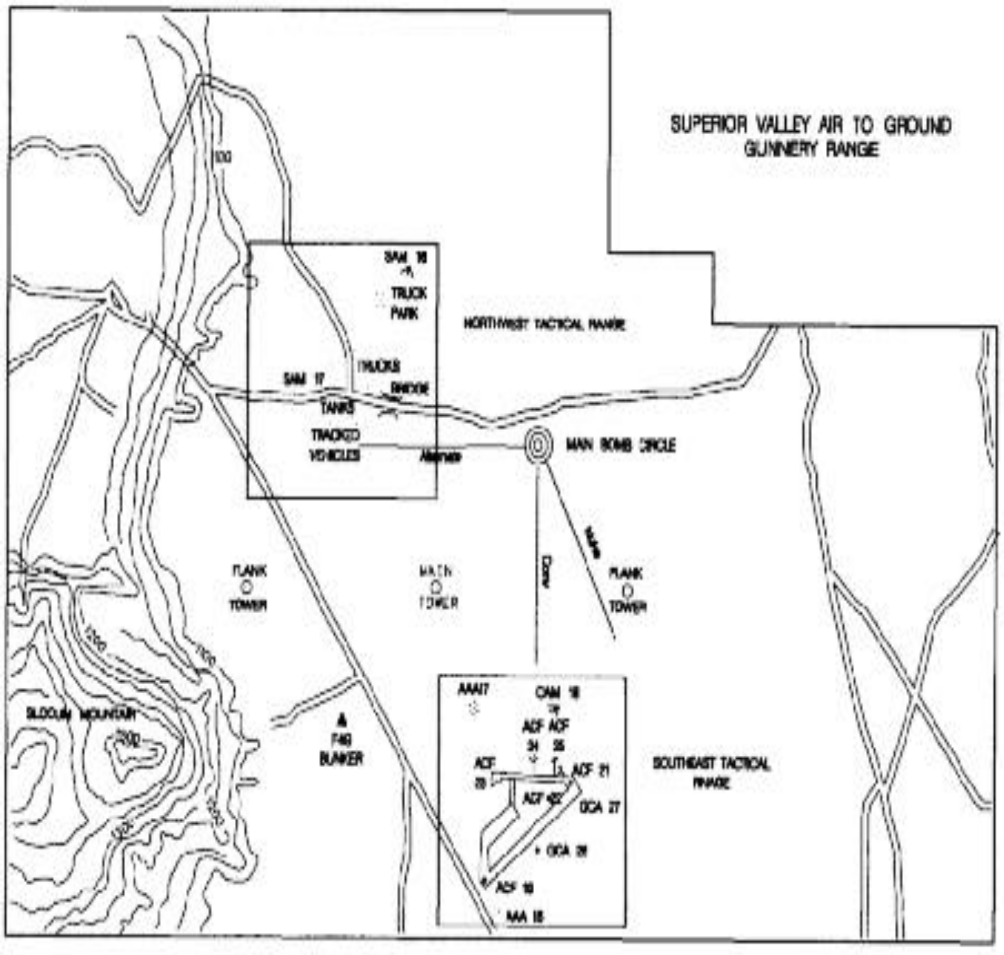


2.10.6.6. The center of all patterns is 35½41'N, 117½06'W. This is about five (5) NM southwest (SW) of Wingate Airfield Target and two point four (2.4) NM south of the road junction leading east to Wingate Airfield. Elevation is 1,760' MSL.

2.10.6.7. Circular and Figure 8 patterns use firing cones of 285o through 075o right-hand turns and 045o through 255o left-hand turns. To prevent lofting projectiles toward Searles Lake, limit climb patterns to the east end of Mojave B2 North Range.

2.11. Superior Valley Tactical Training Range. (Fig 2-11)

Figure 2.11. Superior Valley Tactical Training Range.



2.11.1. The Range has over 60 diverse targets including surface-to-air missiles, antiaircraft artillery (AAA), and convoy targets. All targets are available for inert ordnance delivery only. The Range consists of a Range Operations Center, main control tower, two flank towers, photovoltaic power production facility, helicopter pad, target storage facility, and four main targeting areas. They are the Northwest Target Complex, the conventional and Alternate Bombing Circles, the Southwest Airfield Target Complex, and the Low/High Angle Strafe Pit. This is a Class A Range.

2.11.2. Send requests to use range to 412th Operations Support Squadron (OSS)/OSCS for coordination with China Lake.

2.11.3. Contact SPORT on departure.

2.11.4. Range Clearance. Prior to entry, contact China Control (362.0). China Control will pass mission to Superior Control until the mission is ready to check-out with China Control. Area coordinates are:

35×15’56”N	117×12’27”W
35×24’00”N	117×12’27”W
35×24’00”N	116×55’23”W
35×15’56”N	116×55’23”W

2.11.5. Range Entry. Enter Superior Valley from the south unless prior coordinated with China Control. Entry from the east (Goldstone) is prohibited.

2.11.6. Range Operations. Do not expend ordnance without Range Control Officer (RCO) approval. Obtain clearance to expend ordnance on Superior Valley on primary frequency 362.0 or secondary 336.45. Use only training ordnance containing no explosives other than small spotting charges. The RCO advises flight lead when 5 minutes remain on the range. Flight lead add "Last Pass" to base call of final pattern. Accomplish armament safety checks before range exit.

2.11.7. Range exit. After completing range mission, contact China Control for handoff to SPORT or JOSHUA. For reentry into R-2515, confirm with China Control the status of Black Mountain Supersonic Corridor.

2.11.8. Conventional and Tactical Patterns. Plan all conventional patterns to avoid overflight of any occupied structures on or off range. Make cockpit switch changes while wings level on downwind.

2.11.8.1. Flight lead is authorized to emphasize or expand any pattern to aid in training provided RCO approval is obtained and all members of the flight are using similar delivery parameters.

2.11.8.2. Conventional weapons delivery (box or curvilinear patterns) will be left hand patterns on a 075o or 345o +/- 20o final attack heading.

2.11.8.3. Limit pop-up deliveries on the main bomb circle to 075o or 255o +/- 20o final attack headings.

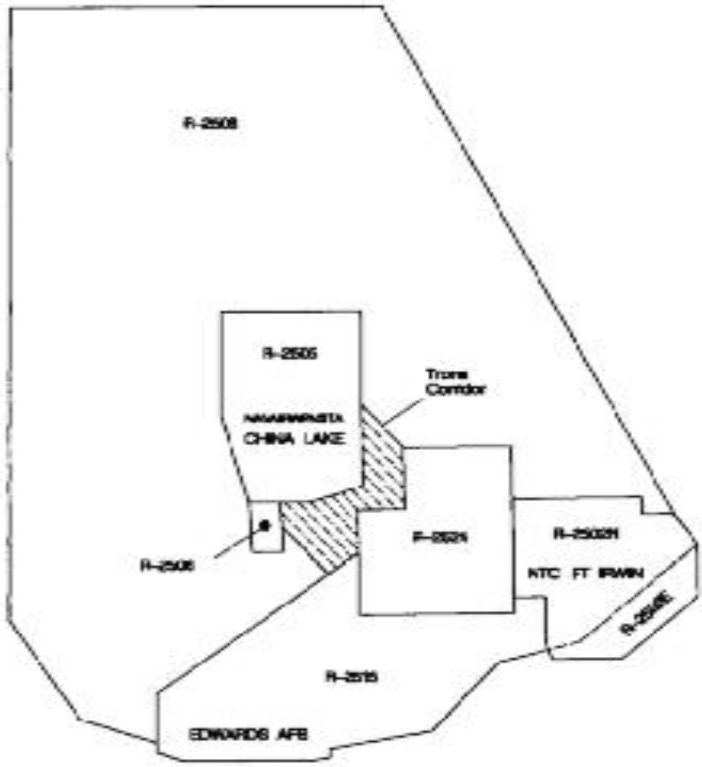
2.11.8.4. All deliveries on the southeast (SE) Tactical Range limit final attack headings to 105o or 225o +/- 30o .

2.11.8.5. The final attack heading for strafe is 345o. Panels are numbered (#1, #2) from the tower side out with #1 panel closest to the tower.

2.11.8.6. Make High Angle Strafe on the main bomb circle on headings of 075o and 345o +/- 20o and on the NW Tactical Range (Opened on a limited capacity. Call for restrictions: Defense Switching Network (DSN) 437-9135; C: 760-939-9135) on headings between 270o Clockwise (CW) to 090o.

2.12. Trona Corridor Controlled Firing Area (CFA). (Fig 2-12).

Figure 2.12. Trona Controlled Firing Area.



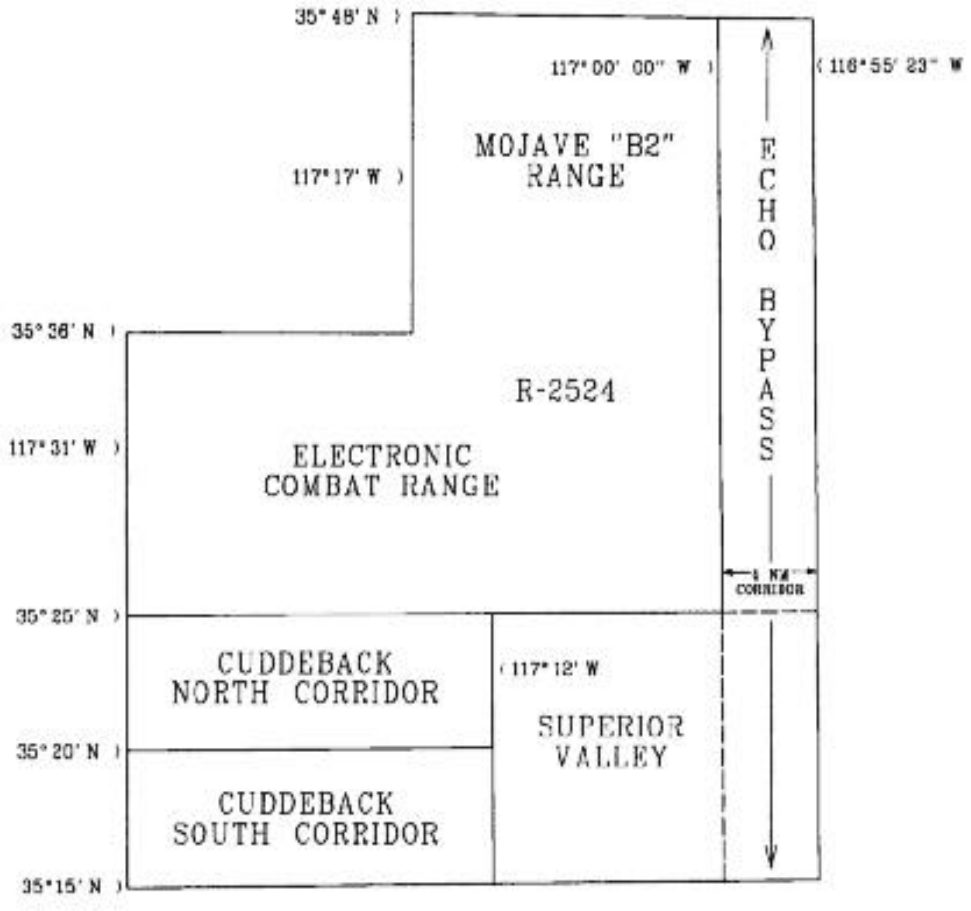
2.12.1. The Trona Corridor CFA accommodates the development of weapons and weapon systems and realistic tactical scenarios requiring long standoff distances. The CFA lies between R-2505 and R-2524 from 3,000' AGL up to but not including FL200. Visual Flight Rules (VFR) general aviation aircraft below FL180 cannot be restricted in Complex airspace. During activation, JOSHUA and China Control will monitor the corridor to ensure the area is clear of all traffic before allowing the launch aircraft to go "HOT." The CFA is activated by a Notice to Airmen (NOTAM) and pertinent information is put on the Edwards' Automated Terminal Information System (ATIS). The coordinates are:

35×37'30"N 117×35'33"W
35×40'30"N 117×25'03"W
35×36'00"W 117×16'55"W
35×27'40"N 117×26'03'W

2.12.2. To assist military aircraft requesting avoidance of the CFA, they may use the ECHO BYPASS (Fig 2-13). The Echo Bypass, through the Superior Valley Tactical Training Range, provides an access/entry corridor for aircraft transiting from R-2515 to the Echo Range and the Panamint MOA or vice versa. The corridor is approximately four (4) NM wide and can be flown at both low and high altitudes at speeds below zero point nine (0.9) mach. Aircraft flying low level in the bypass will not descend below 500' AGL within 2,000' of manned sites. Aircraft with hung or armed ordnance will not over fly manned sites. The width of the bypass uses the eastern boundary of R-2524

(116×55’23”W) and 117×00’W. China Control will issue clearances and control flights using the Echo Bypass.

Figure 2.13. Echo Bypass.



2.12.3. Units desiring to use the Echo Bypass during times when the CFA is not active must schedule their requests through AFFTC Center Scheduling. Provide call sign, type and number of aircraft, duration of use, altitude, date, and time. This information will be coordinated with the Echo Range Scheduling Office who will use their standard criteria in scheduling the Echo Bypass.

WARNING

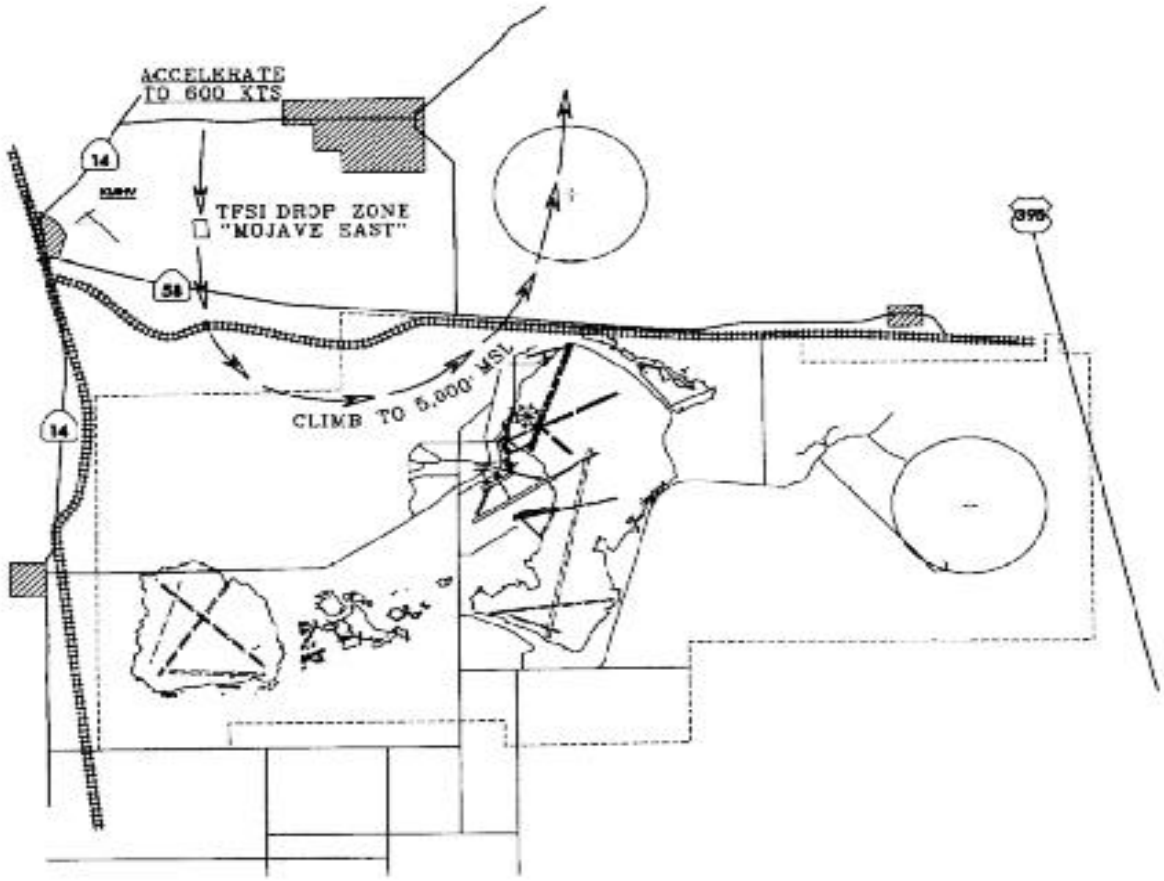
Use caution during transition due to the closeness of the Goldstone Complex and the possibility of concentrated helicopter activity within the U.S. Army’s National Training Center (R-2502N).

2.13. Mojave Airport Test Ranges.

2.13.1. Several aerospace associated companies are located at Mojave Airport. Through a Letter of Agreement with AFFTC, they operate test missions in the R-2508 Complex. These companies provide program reviews to the AFFTC Safety Office before conducting operations.

2.13.2. TRACOR Flight Systems, Inc. (TFSI) operates a drop zone (DZ) located two and one half (2-1/2) miles east of Mojave Airport (Fig 2-14). The DZ center is at 35½03.8'N, 118½04.5'W (EDW 270/18). TFSI uses F-4C, F-100 and T- 33 aircraft for high speed drops up to 600 Knots Indicated Air Speed (KIAS). Aircraft approach the Drop Zone (DZ) from the north, accelerating and sometimes descending from 15,000' MSL. After delivery they make a left turn into R-2515 airspace at initial drop altitude or in a climbing turn back to pattern altitude. The TFSI drop zone is known as "MOJAVE EAST." JOSHUA Approach advises when this DZ is in use.

Figure 2.14. TFSI Drop ZonePattern.



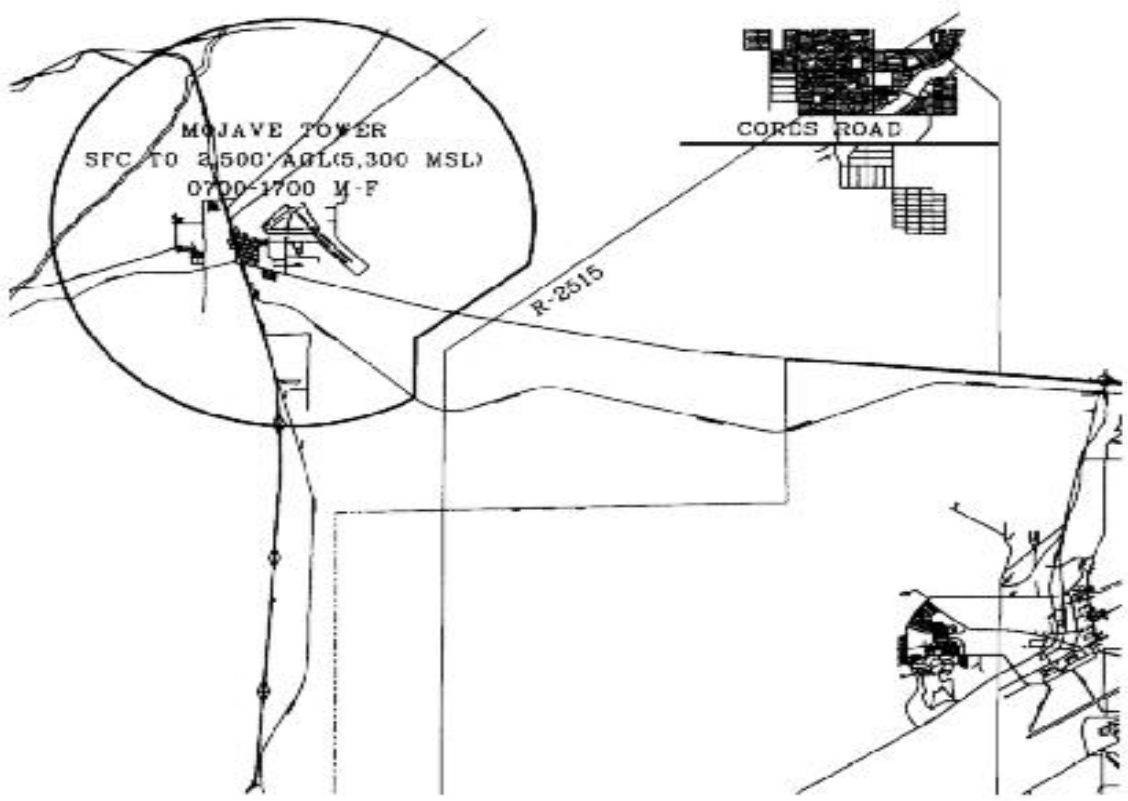
2.13.3. Flight Research, Inc. (FRI) operates an air-to-ground gunnery range south of California City called "VIPER RANGE." The range is within R-2515 with a center of 35½03.9'N, 117½59.8'W. Aircraft approach the range either from the west with a right turn to the south or from the south with a left turn to the west. All FRI operations on this range are scheduled through Edwards Scheduling and the Central Coordinating Facility. JOSHUA and SPORT advise aircraft on their frequencies when Viper Range goes hot.

2.13.4. AFFTC allows the National Test Pilot School (NTPS) to conduct their spin demonstration flights in the West Spin Area. During these times the base of the spin area is 6,000' MSL. This change takes place intermittently, only during times the NTPS is actually conducting a spin mission. All other times the base of the West Spin Area remains at 11,000' MSL. When the lower floor is in effect,

SPORT advises aircraft in R-2515. Tower warns airborne traffic calling for entry into the pattern or taking off and puts it on the ATIS as "West Spin Area is active 6,000' MSL and above."

2.14. Mojave Airport (MHV). (Fig 2-15)

Figure 2.15. Mojave Airport Class D Airspace.



2.14.1. MHV has an FAA certified tower. Class D airspace is automatically in place around the airport when the tower is operating. Normal hours for Mojave Tower are 0700 to 1700L, Monday through Friday.

2.14.2. The Mojave Class D airspace is the airspace within a horizontal radius of four point three (4.3) NM from the geographical center of the airport extending from the surface up to but not including 2,500’ AGL (5,300’ MSL) above the airport, excluding R-2515 and the airspace within one half (1/2) mile outside of R-2515.

2.14.3. Federal Air Regulations (FAR) require aircraft within Class D airspace be in contact with the tower. Mojave tower frequencies:

Ground Control	123.9
Local Control	127.6
Both	279.95 (UHF)

2.14.4. Avoid the Mojave Class D airspace or be in contact with the tower. Major impacts of this restriction are low altitude Cords Road missions, missions exiting the Desert Butte Terrain Following Route (TFR), and patterns used for the North Radar Fidelity and Geometric Range (RADFAG).

Note: SPORT shall coordinate with Mojave Tower for airspace penetrations if they are requested to do so ahead of time.

2.15. Local Area Aerial Sporting Activities.

2.15.1. Parachute Jumping Activities. Sport/training parachute jumping occurs at California City airport during daylight hours, especially on weekends and holidays. The DZ is one (1) NM SW of the airport. Jumps occur from 17,500' MSL. When active, avoid the area as much as possible.

2.15.2. Glider Operations. Glider activity in the vicinity of Edwards occurs at the Tehachapi, El Mirage, Rosamond, Mojave, Crystal Aire, and California City airports. Avoid flying near these airports as much as possible. If overflight is required, use caution and notify JOSHUA of any glider traffic observed.

2.15.3. Hang Glider Operations. Intensive hand glider operations creating a mid-air collision potential occur primarily during June, July, and August north of the Northeast (NE) shoreline of Owens Lake, located in the Owens Valley and along the Inyo Mountain Range to Bishop.

Chapter 3

AIR TRAFFIC PROCEDURES

3.1. Pretakeoff Complex Clearance.

3.1.1. Operations within the R-2508 Complex require an ATC clearance. Edwards AFB and Air Force Plant 42 based aircraft will be issued a "Pancho Two" work area clearance. This clearance requires the aircrew to maintain Visual Flight Rules (VFR) under the concept of see and avoid. JOSHUA may issue a SAGE Two clearance which does not include the Barstow MOAs and has an altitude limit of FL290. If this clearance does not meet your requirements request the Pancho Two. A Pancho Two clearance includes the following airspace:

3.1.1.1. R-2515.

3.1.1.2. Isabella (excludes the Inyokern Transition Area between 0500-0700, 1100-1300, and 1800-2400 Local) and Panamint, FL500 and below.

3.1.1.3. Owens and Saline, FL290 and below.

3.1.1.4. Barstow West, FL500 and below

3.1.1.5. Barstow East, FL230 and below.

3.1.2. JOSHUA requires 10 minutes prior notice to coordinate release of airspace with adjacent FAA centers for aircraft requesting higher operating altitudes in Owens and Saline.

3.1.3. IFR clearances are available if weather conditions are encountered which precludes flight in Visual Meteorological Conditions (VMC). An IFR clearance shall be issued to position the aircraft in weather conditions that permit VFR. Once VFR can be maintained, pilot’s are required to cancel the IFR clearance.

Note: The only condition under which a participating aircraft will be issued an IFR clearance is if the aircraft encounters weather conditions which are below the minimum for flight under VFR and the pilot is unable to proceed VFR. The purpose of the IFR clearance is to position the aircraft in weather conditions that permits VFR, to return to base, or to exit the area.

3.1.4. Obtain clearances for Special Use Areas (SUA) (Alpha Corridor, Precision Impact Range Area (PIRA), Spin Areas, Supersonic Corridors, Refueling Areas, etc.) directly through SPORT, either before or after takeoff.

3.1.5. The Pancho Two clearance satisfies the majority of AFFTC mission requirements; however, it does not include R-2508 peripheral areas such as Bakersfield, Porterville, Deep Springs, Shoshone, or Bishop. Missions which require areas not included in the Pancho Two clearance should schedule the required areas through Center Scheduling or Current Operations and request these areas on initial contact with JOSHUA or SPORT to include altitude. Inflight requests for unscheduled areas may still be made; however, some delay should be anticipated.

Note: All adjacent FAA facilities have Military Operations Specialists (MOSs) who can assist you in mission planning. If during mission planning, the flight profile could possibly extend into the adjacent MOAs, mission planners should schedule these peripheral MOAs to allow for added airspace and protection. If no adjacent MOA is available, contact the MOS early in the planning stages for the mission profile you are establishing.

3.1.6. Aircraft operating in proximity to the airspace boundary may expect positive control instructions by either JOSHUA or SPORT to turn away from the boundary when in the judgment of the controller a spillout may occur. Positive control instructions shall be followed; however, the pilot is still responsible to comply within the limits of the ATC clearance.

Note: The pilot has primary responsibility to remain within the lateral confines of the airspace specified in the ATC clearance.

3.2. IFR Flight Plans.

3.2.1. Aircraft filing IFR flight plans from Edwards to destinations outside of the restricted areas will advise Edwards Ground Control one minute prior to departure and remain on Ground Control frequency until receiving climb out instructions. Heading and altitude instructions are designed, when required, to keep departing aircraft clear of active special use airspace, provide separation from other known IFR aircraft when weather conditions dictate, and after coordination with the receiving FAA facility, to position the departing aircraft to enter the National Airspace System's traffic flow.

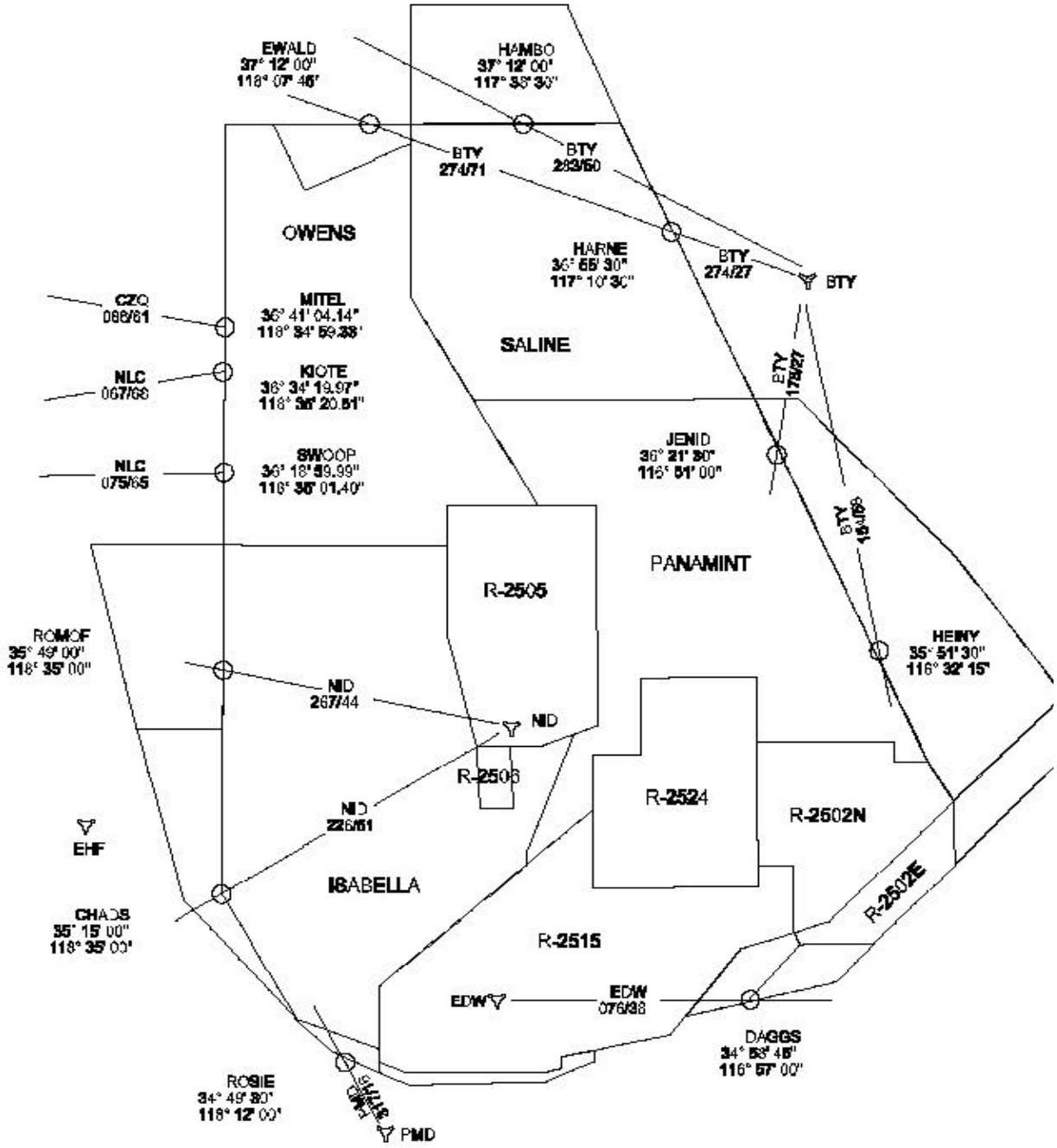
3.2.2. When weather conditions at Edwards are less than VFR, IFR departures are authorized. Pilots shall advise ATC when they have reached VFR conditions and shall resume the requirement of "see and avoid."

3.2.3. The IFR portion of a flight plan will not begin until the restricted area boundary unless IFR conditions are encountered.

3.2.4. Aircraft departing with the intent to pick up an IFR clearance outside the R-2508 Complex will remain in contact with SPORT/JOSHUA until instructed to change frequency.

3.2.5. Twelve ingress/egress fixes are established around the perimeter of R-2508 (Fig 3-1). Aircraft delaying within R-2508/R2515 on a Pancho Two clearance prior to departing IFR shall file through one of these fixes as the second element in their flight plan (i.e. R-2508..CHADS..EHF).

Figure 3.1. Ingress/Egress Fixes.



3.2.5.1. Aircraft not delaying within R-2508/R-2515 may file NAVAID direct (e.g. EDW..DAG).

3.3. Flight Plan Filing.

3.3.1. All aircraft departing Edwards must have a flight plan on file with Base Operations unless the aircraft is on a stopover flight plan or in the Edwards Scheduling System (ESS). Base Operation must have a flight plan on all other cases.

3.3.2. All local flying squadron commanders (to include all 412th TW flying squadrons, MAG-46 Det B, NASA, Aero Club, and Flight Operations Van Nuys District (Mojave) will ensure compliance with the following procedures when filing flight plans with Base Operations via electronic (facsimile) means.

3.3.2.1. Use DD Form 175, Military Flight Plan, DD Form 1801, DoD International Flight Plan, or other authorized form IAW AFI 11-206, General Flight Rules, and FLIP General Planning.

3.3.2.2. Original flight plans will not be accepted via radio or telephone. However, locally filed flight plans may be amended by any means prior to departure. Once a flight plan has been activated, any corrections or deviation must be coordinated with an air traffic control facility or Flight Service Station. Base Operations cannot correct or amend flight plans for airborne aircraft.

3.3.2.3. Flight plans may be faxed to Base Operations (DSN: 527-5544). It is the responsibility of the aircraft commander and/or flying squadron to call Base Operations to confirm receipt and the legibility of the faxed flight plan.

3.3.2.4. Instrument Flight Rules (IFR) flight plans will be filed at least one hour prior to estimated time of departure (ETD). Visual Flight Rules (VFR) flight plans will be filed at least 30 minutes prior to ETD.

3.3.2.5. Flight plan changes due to weather, ground abort, maintenance cancellations, etc. will be identified to Base Operations (DSN: 527-2222/4185) as soon as possible.

3.3.2.6. Base Operations will coordinate problems with the flight plan (e.g. route of flight, missing data, etc.) with the on-duty Operations Officer of the affected squadron and/or aircraft commander.

3.3.2.7. Users and local flying squadrons will maintain original flight plans IAW AFMAN 37-139, Records Disposition Schedule.

3.4. Radio Contact With Edwards Control Tower.

3.4.1. Locally assigned aircraft equipped with VHF/UHF radios will use UHF when communicating with tower.

3.4.2. Use tower primary frequency unless a test mission frequency is required for a particular flight test. The requirement for tower to join mission on mission frequency must be pre-coordinated.

3.4.3. Unless otherwise instructed by Tower:

3.4.3.1. During daytime VFR operations, all departing turboprop/jet aircraft (except transport and cargo types) will remain on Tower frequency until crossing departure end of the runway.

3.4.3.2. During nighttime VFR or IFR operations, Tower informs all departing turboprop/jet aircraft (except transport and cargo types) to change to departure control frequency before takeoff.

3.4.3.3. During day/nighttime VFR or IFR operations, Tower informs all departing civil aircraft and military transport and cargo types to change to departure control frequency approximately one half (1/2) mile beyond departure end of the runway.

3.5. Takeoff Radio Procedures.

3.5.1. When instructed by tower, contact SPORT on mission frequency or SPORT common frequencies (272.0 or 132.75). If SPORT is closed, contact JOSHUA. Remain in contact with SPORT until advised to change frequency.

3.6. Airspace Access Procedures After Takeoff.

3.6.1. When practical, avoid operations at altitudes less than 15,000 MSL in the portion of Isabella subject to high-density civil traffic.

3.6.2. To minimize exposure to civilian aircraft along Highway 14 toward Inyokern and Highway 58 through Tehachapi, aircrews departing on a Complex clearance to the north or northwest should climb to 15,000’ MSL or above (test mission requirements permitting) before crossing a line from Mojave to Inyokern. Return to Base (RTB) aircraft from these directions, remain above 15,000’ MSL (test mission requirements permitting) until past this line.

3.6.3. If mission allows, use the following corridors (see aircrew standard local area chart) when departing into R-2515 or the R-2508 Complex. These procedures do not apply to light aircraft or helicopters which have other prescribed routes

3.6.3.1. Rwy 22:

3.6.3.1.1. Departure to Isabella: After takeoff, turn right. Remain west of the hospital/housing area and east of the bend in Rosamond Blvd. Exit R-2515 boundary between Mojave Airport and California City.

3.6.3.1.2. Departure remaining in R-2515: Same procedures as above until crossing Highway 58. After crossing the highway, proceed to briefed area within R-2515.

3.6.3.2. Rwy 4:

3.6.3.2.1. Departure to Isabella: After takeoff and passing mid-lakebed, turn left to exit R-2515 boundary between California City and Highway 395, Red Mountain Area.

3.6.3.2.2. Departure remaining in R-2515: After takeoff and passing mid-lakebed, proceed to briefed area within R-2515.

3.7. JOSHUA Traffic Advisory Service. (Fig 3-2).

3.7.1. JOSHUA provides traffic advisory service in the R-2508 Complex. ATC functions, clearances, and traffic advisories are conducted on the frequencies as indicated in figure 3-2.

3.7.2. Pilots with mission frequencies requirements shall contact JOSHUA on the appropriate ATC frequency unless previously coordinated. Advise JOSHUA of discrete frequency requirement and if "Active" monitoring on the mission frequency is required. All aircrews not requesting "active" monitoring will be "inactively" monitored.

3.7.2.1. Active monitoring - Mission frequency is made available at the control position with the receiver control switch in either the headset or speaker position, enabling JOSHUA continuous pilot to controller communications.

3.7.2.2. Inactive monitoring - The discrete frequency is available at the control position with the receiver control switch in the MUTE position inhibiting reception. Traffic and boundary calls will be made as needed. Direct pilot to controller communications requires the pilot to switch to the appropriate ATC frequency.

3.7.3. Inactively monitored aircraft contact JOSHUA on respective work area frequency mentioned above for amended clearances, requests, RTB, etc. JOSHUA does not monitor the low level frequency (315.9).

3.7.4. JOSHUA and SPORT may use the term "maneuvering" as part of the traffic advisory call. This indicates the traffic information concerns an aircraft changing flight direction and/or altitude so rapidly the controller is unable to provide accurate position or altitude information.

Example: "Traffic, northwest, ten miles, maneuvering."

3.8. SPORT Air Traffic Control Services.

3.8.1. SPORT is an ATC facility which provides standard air traffic control services, traffic advisories, boundary calls, and other requirements in conjunction with SUAs within R-2515. Aircraft must be within airspace for which SPORT has control authority. SPORT Monitors 272.0 and 132.75.

3.8.2. ATC services may be provided anywhere within the R-2508 Complex. However, SPORT does not operate remote radios and may be unable to effectively communicate at extreme ranges or altitudes. Examples of air traffic control services are:

3.8.2.1. Clearance for flight to operate within R-2515 and other designated airspace; within specified altitude strata; within specified airspace blocks or geographic areas.

3.8.2.2. Traffic advisories and airspace boundary alerts.

3.8.2.3. Approval to conduct instrument approaches regardless of weather conditions.

3.8.3. The approach sequence interval between aircraft conducting practice instrument approaches to Edwards depends on the runway acceptance rate. The standard sequence interval between aircraft conducting practice instrument approaches is not less than five (5) NM.

3.8.4. Coordinate special operating requirements established by Safety Review Boards (SRB) or other flight safety direction with SPORT for execution (ext. 73928/73931) (Atch 4).

3.8.5. SPORT controls airborne access into the PIRA and Alpha Corridor.

3.9. R-2515 Operations.

3.9.1. SPORT is responsible for determining when R-2515 is becoming unsafe due to saturation. SPORT has the authority to direct aircraft to depart R-2515 based on mission priority.

3.9.2. Except for transition to and from the tower pattern and working areas, only test missions and missions requiring the facilities within R-2515 will operate within R-2515 unless specifically cleared by SPORT. Aircrews desiring to operate within R-2515 on missions not specifically requiring such facilities will contact SPORT on departure, inform the controller that this is a non-test mission, and

request operations within R-2515. SPORT will only approve such operations when they can be conducted clear of and without interference to test missions. At anytime SPORT determines interference with a test mission is likely, the aircraft will be directed to depart R-2515 or RTB.

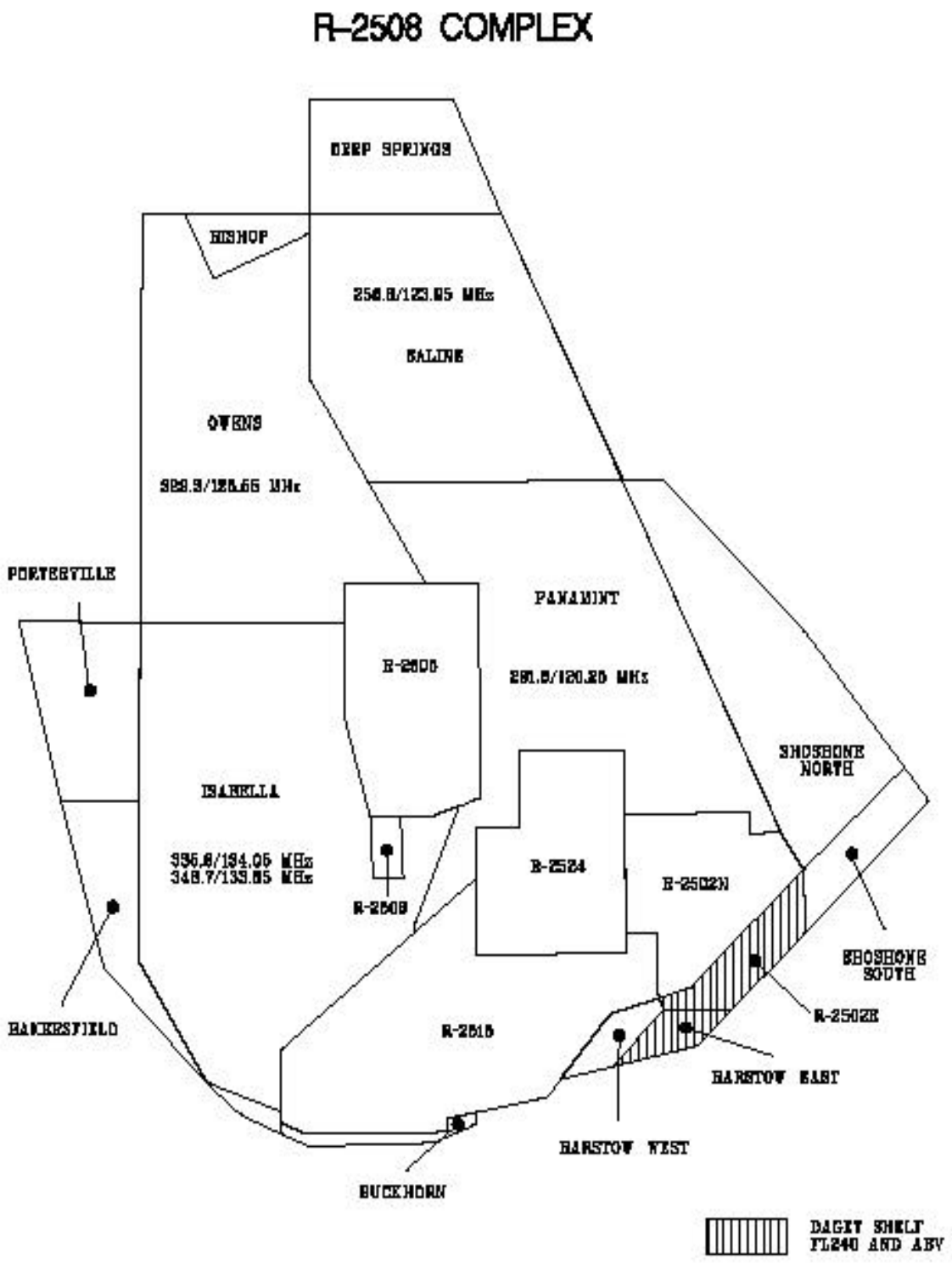
3.9.3. If an aircrew determines that R-2515 is too congested for safe mission operation, the aircrew will notify SPORT of intentions to either depart or RTB.

3.9.4. Civil aircraft are permitted to operate within R-2515 only after the operator has entered into a Letter of Agreement with the AFFTC or signed a Hold Harmless Agreement and has followed proper scheduling procedures. Aircraft responding to an emergency situation (accident, gas leak, etc) are not required to schedule airspace.

3.10. Mission Termination.

3.10.1. Advise JOSHUA/SPORT of mission completion and RTB. RTB aircraft working with JOSHUA will remain on their frequency until given a frequency change to SPORT inbound to R-2515. SPORT normally issues the current wind, altimeter setting, runway in use, and pertinent information on active areas (e.g. Cords Road, Spin Areas, etc.) within R-2515. On initial contact with Edwards tower, state that you have Automatic Terminal Information System (ATIS). Specify type aircraft and landing.

Figure 3.2. FAA ATC Frequencies.



Chapter 4

R-2515 PROCEDURES

4.1. R-2515 Airspace And SPORT Procedures.

4.1.1. R-2515 airspace and SPORT services are part of the scheduling process and treated the same way as other limited range resources. (AFFTCI 11-15).

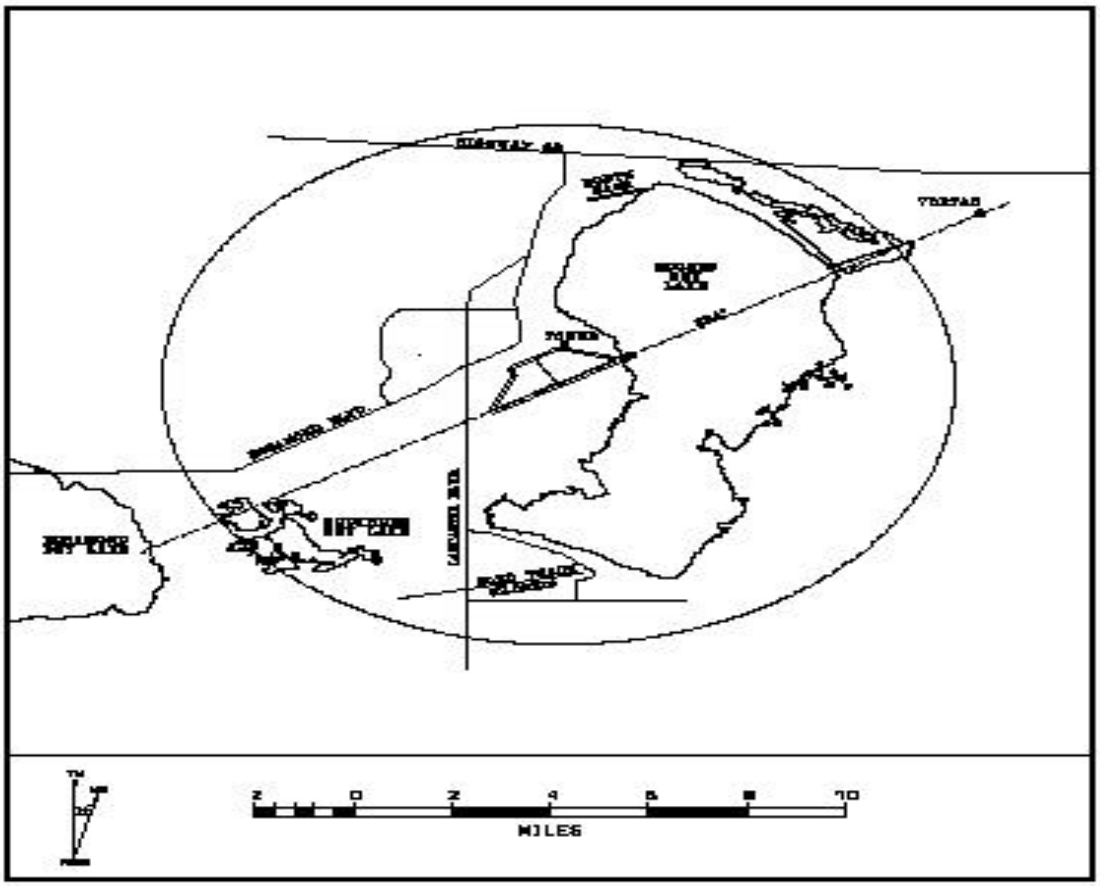
Note: Missions requiring the PIRA or Alpha Corridor for other than transit are scheduled under AFFTCR 11-15

4.1.2. SPORT reviews each flying schedule the day prior to determine controller manning requirements. As a general rule, SPORT determines the number of missions a controller may simultaneously work as determined by mission requirements.

4.1.3. SPORT determines if there are any SUA conflicts (i.e. PIRA, Spin Areas, etc.), then coordinates with Range Squadron's Operations Duty Officer (ODO) and the conflicting project's RCO to try to resolve the confliction. If a mutually agreed upon solution cannot be reached, the decision of SUA ownership is made by Center Scheduling, normally using the AFFTC priority system.

4.2. Edwards Tower Class D Airspace. (Fig 4-1).

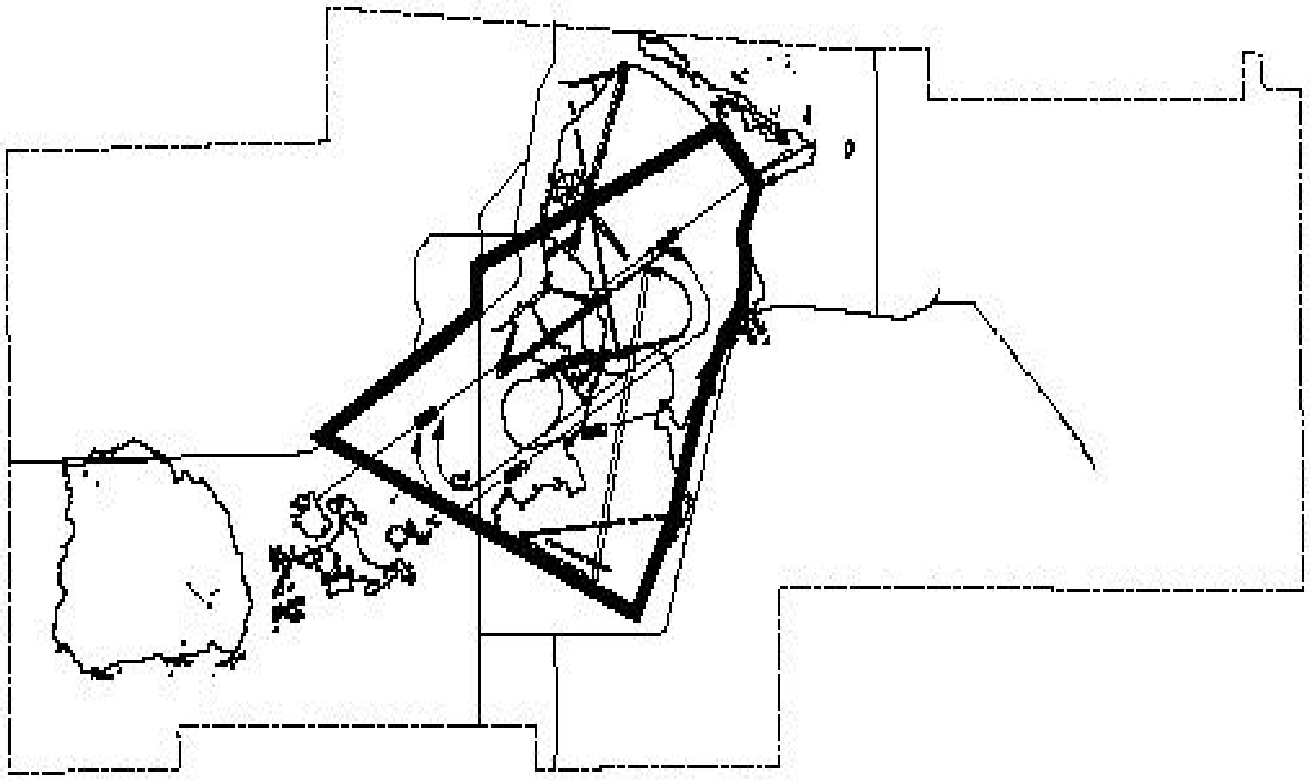
Figure 4.1. Edwards Class-D Airspace.



4.2.1. Edwards AFB Class D Airspace is a seven (7) NM radius from the center of Runway (Rwy) 4/22 to 4800' MSL. When active, the Alpha Corridor, PIRA and Remotely Operated Aircraft (ROA) Work Area are excluded from the Class D. Edwards tower exercises operational control over the traffic patterns and establishes landing sequence.

4.3. AFFTC Airshow Special Use Area.(Fig 4-2).

Figure 4.2. AFFTC Airshow Special Use Area.



4.3.1. Located within the immediate vicinity of main base for aircraft conducting airshow practices. Aircraft requiring use of this airspace shall contact SPORT and Tower no later then (NLT) 24 hours prior to engine start to coordinate requirements.

4.3.2. The Airshow Special Use Area bounded by Lakebed Rwy 5/23 extending to Rogers Dry Lake shoreline and then follows the east shoreline southward to the southern edge of the Lakebed. From there proceed in a straight line to Bend-in-the-Road on Rosamond Boulevard (Blvd) northward until abeam Lakebed Rwy 5/23. This provides the pilot visual reference points so as to remain within the designated area.

4.3.2.1. This area extends from the surface to the highest altitude as briefed by the pilot.

4.3.3. During airshow practices, the airshow pilot shall advise tower if ground movement of aircraft and/or vehicles should be terminated due to the distractions these aircraft/vehicles may cause.

4.3.4. Procedures and Restrictions

4.3.4.1. Pilots will contact Tower NLT one (1) hour prior to departure so airshow information may be included on the ATIS. Pilots will contact SPORT prior to departure to brief the highest altitude required and the lowest altitude at which an aircraft may safely overfly the airspace

4.3.4.2. When the Alpha Corridor is activated, airshow aircraft shall avoid overflight of this area.

4.3.4.3. Aircraft (including helicopters, ROAs) operations on the Lakebed are not authorized during airshow practices. North Base operations shall be allowed to continue, with climb-outs, missed approaches, and traffic patterns made to the north unless otherwise instructed by air traffic control.

4.4. Cords Road Test Area.

4.4.1. Cords Road is an east/west oriented graded road running across R-2515 from just north of Mojave Airport to Coyote Lake. It lies generally along the 35½05'N. The Cords Road Test Area extends three (3) NM north and south of the road. The road is a visual alignment reference for test aircraft operating in R-2515.

4.4.2. Procedures:

4.4.2.1. Aircraft scheduled to use the Cords Road Test Area will contact SPORT at last chance and when airborne on mission frequency for clearance.

4.4.2.2. SPORT exercises control over the Cords Road Test Area and provides advisory service to mission aircraft operating within or maneuvering to this area. 412 TW/CC has authorized SPORT to issue control instructions to mission aircraft.

4.4.3. Simultaneous Operation.

4.4.3.1. After preliminary agreement to conduct simultaneous Cords Road operations between missions/test squadrons, lead pilots commence final coordination to deconflict their respective operation. Pilots exchange significant details of each operation to remove all conflicts. Avoid placing the burden of activity deconfliction on only one of the operations.

4.4.3.2. If both pilots agree to conduct simultaneous operations, both telephone SPORT (73928/73931), brief individual missions, and advise that each has coordinated with the other and agreed to simultaneous operations.

4.4.3.3. The lead pilots of conflicting missions contact SPORT enroute to last chance or prior to takeoff. Along with changes to briefed missions, advise SPORT of coordination with the other pilot and agreement to conduct simultaneous operations. Based upon the briefings of both pilots, SPORT has final approval for simultaneous operations.

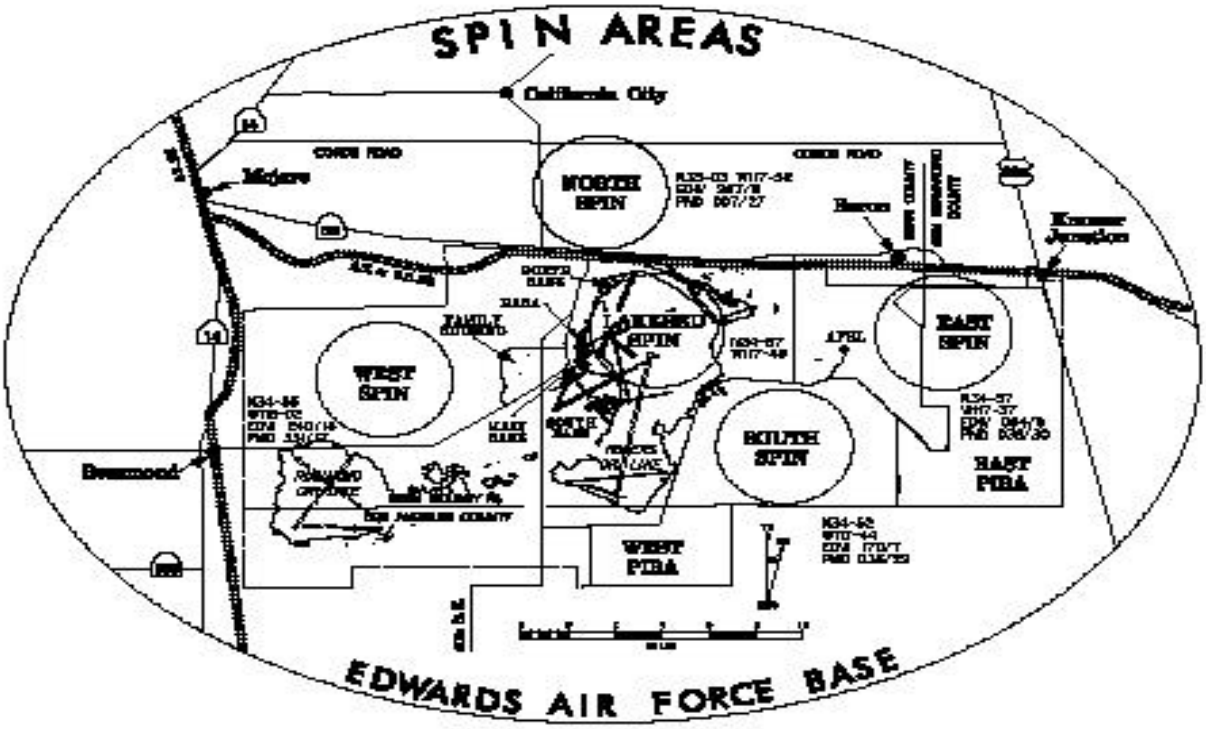
4.4.4. Pilots will determine the status/location of Cords Road traffic with SPORT. When Cords Road is active, pilots will avoid the airspace within three (3) NM of Cords Road except for departures and recoveries or when mission requires use of that airspace .

4.4.5. Rwy 4 departures and all recoveries will cross Cords Road at 4,500' MSL or 11,000' MSL unless in contact with SPORT and a crossing altitude and/or location that avoids the Cords Road traffic has been coordinated. Test or target aircrews needing 4,500' MSL or 11,000' MSL will coordinate with SPORT so other crews may be warned and kept clear. SPORT will advise Rwy 22 departures of a crossing altitude and/or location of Cords Road traffic which avoids the test mission.

4.4.6. SPORT will deconflict on a real-time basis the Desert Butte TFR and Cords Road test missions. Simultaneous operations shall have the concurrence of both aircrews so as not to interfere with each mission.

4.5. Spin Areas. (Fig 4-3).

Figure 4.3. Spin Areas.



4.5.1. These areas are five (5) NM in diameter, extending from 11,000' MSL to unlimited, and designated for all spin programs. The East Spin Area is primarily for missions needing space position/tracker data. The West Spin Area is primarily for the TPS. The AFFTC allows the NTPS at Mojave Airport to conduct spin demonstration flights in the West Spin Area. When required, the base of the West Spin area may be lowered to 6,000' MSL. Test missions use the North Spin Area to make a flameout landing on the lakebed. The South, (in the PIRA) is a backup spin area when other areas are unavailable due to weather, etc.

4.5.2. Procedures:

4.5.2.1. Contact SPORT at last chance on mission frequency.

4.5.2.2. SPORT exercises positive control over the Spin Area and provides advisory service to aircraft operating within or maneuvering to the Spin Area. Aircraft will follow SPORT instructions when maneuvering outside the spin area.

Note: Do not schedule the North Spin for simultaneous operation with Cords Road. Use simultaneous operations procedures to resolve conflicts.

4.5.3. Lakebed Spin Area

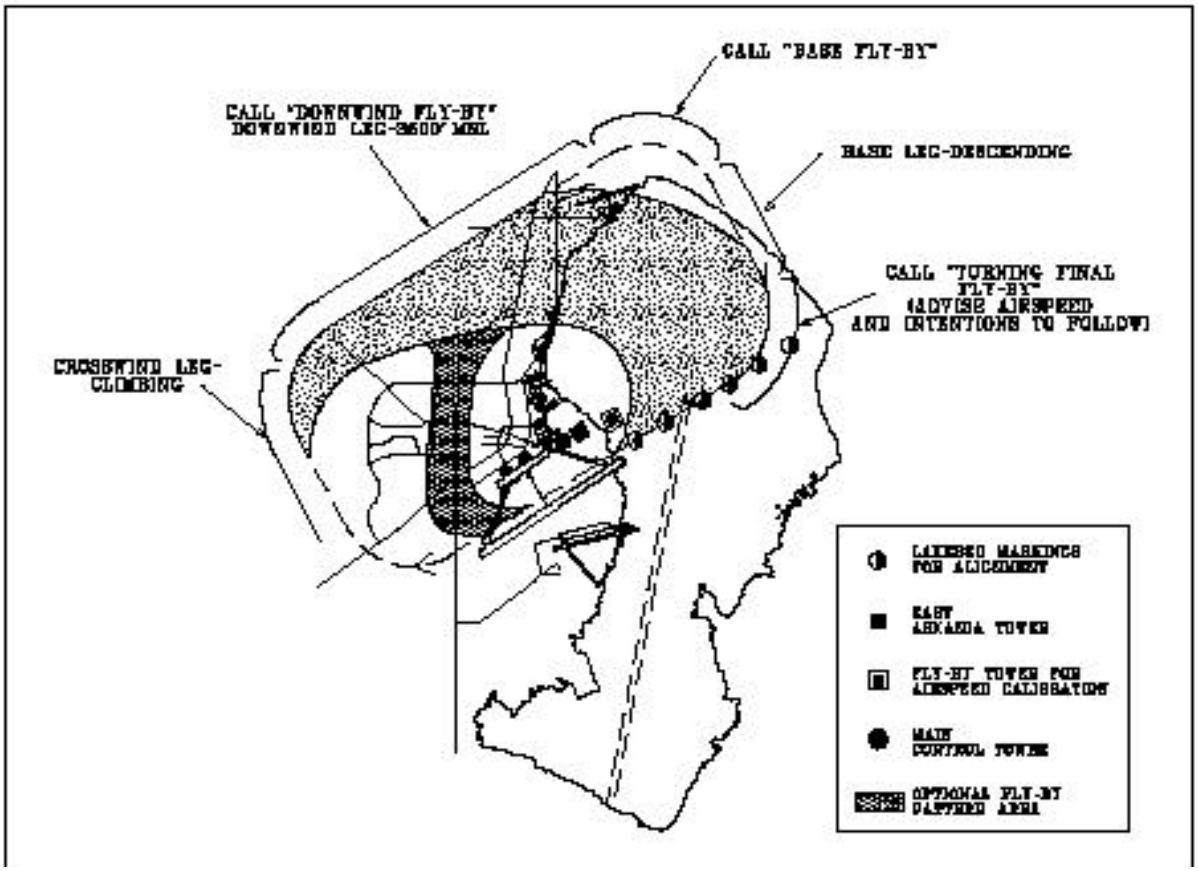
4.5.3.1. A two point five (2.5) NM radius circle centered at 34½57.1'N, 117½49.8'W. It normally extends from 6,000' MSL to FL300.

4.5.3.2. Tower and SPORT will announce the area "HOT". When the spin area is hot do not fly shuttle approaches, low Lift over Drag (L/D) approaches, or Simulated Flameout (SFO) patterns above 5000' MSL. When the base of the spin area is 6000' MSL do not fly IFR approaches and make IFR departures only from Rwy 22. Do not make performance climbs in a northeasterly direction that puts the aircraft over the lakebed.

4.5.3.3. Other aircraft will avoid the area when it is "Hot" but may operate unrestricted below the spin area.

4.6. Tower Flyby Line. (Fig 4-4).

Figure 4.4. Tower Flyby Line.



4.6.1. The tower flyby line is a subsonic airspeed calibration course. The Flyby line is located parallel to the extended centerline of Rwy 4/22 about midway between the ramp and runway starting at the north edge of Rogers Dry Lake and terminating near the west taxiway. Pattern alignment markers are on the lakebed between the flyby tower and the east shoreline.

4.6.2. The standard tower flyby pattern is approximately four (4) NM wide and eight (8) NM long. The flyby pattern is east to west, right turns only, and at speeds of less than Mach one (1) True. Variable short patterns, commensurate with mission requirements, may be flown in the shaded area. The crosshatched area is an optional short turnout between Main Base and the housing area for low

performance (reciprocating) aircraft only. High performance aircraft go outside the housing area. Do not make a turnout east of housing area (short turnout) if carrying external stores other than fuel tanks. Aircrews may extend the downwind leg a maximum of three (3) NM to accommodate speeds over 400 knots true airspeed (KTAS). When extending the downwind leg, use caution for light aircraft along Hwy 58. Maintain a standard rectangular pattern and a turn to final abeam the VORTAC. Do not deviate from the downwind altitude of 3,500' MSL. Maintain at or below 2,800’ MSL on final until abeam the flyby tower.

4.6.3. Conduct missions under VFR conditions during daylight hours only. Late afternoon scheduling during winter months is not recommended due to low sun angle.

4.6.4. Procedures.

4.6.4.1. Contact tower for clearance before entering pattern.

4.6.4.2. Maintain communications with tower during operations (318.1) and make radio calls per Figure 4-4. Advise tower when making short turnout or when extending downwind leg.

4.6.4.3. Abort mission if communications with tower is lost.

4.6.4.4. Maintain separation from other aircraft in the tower flyby pattern.

4.6.4.5. Advise tower on downwind leg of last pattern and intentions to follow.

4.6.4.6. Restrict practice flybys to 450 KIAS unless part of an approved test plan or test curriculum.

4.6.4.7. Flyby Line/Closed Traffic Transition: When terminating operations and requesting entry into closed traffic, climb to 3,300' MSL and fly runway heading until tower approves crosswind/ closed traffic or as instructed by tower**.**

Note: Multiple aircraft formations (two (2) or more) are not authorized flyby line operations unless specific test requirements exist and are approved. Expect aircraft overflights at or above 3,300' MSL between the tower flyby final and the flyby tower. Be alert for opposite direction traffic when Rwy 4 is active.

4.7. Takeoff And Landing Facility (TO/L).(Fig 4-5)

4.7.1. The TO/L towers are about one (1) mile north of Rwy 4/22 and one (1) mile in from each end of the runway. The TO/L provides uninterrupted photographic data to determine aircraft takeoff and landing characteristics.

4.7.2. Monitor control tower’s primary frequency for air traffic control instructions.

4.7.3. Before takeoff or landing, contact JACKSON Tower on mission frequency for passage of mission information. Brake release countdown or terse abort instructions are permissible on primary Edwards tower frequency; hold other transmissions to a minimum.

4.7.4. Before brake release or the first data point, provide JACKSON Tower with a 10 second countdown to effectively set instrumentation recording levels.

4.7.5. Do a tone check before data run when tone correlation is required.

4.8. Low Altitude Ground Speed Calibration Courses. (Fig 4-5 & 4-6)

4.8.1. Edwards has two (2) low altitude ground speed calibration courses. One (1) course is on the South Base ramp runway and the other is on Rogers Dry Lake parallel to and east of Lakebed Rwy 17/35.

4.8.2. Maintain communications on tower's primary frequency for air traffic control instructions.

4.8.3. Contact tower prior to entry.

4.8.4. Advise tower when mission is complete.

Figure 4.5. Takeoff and Landing Facility.

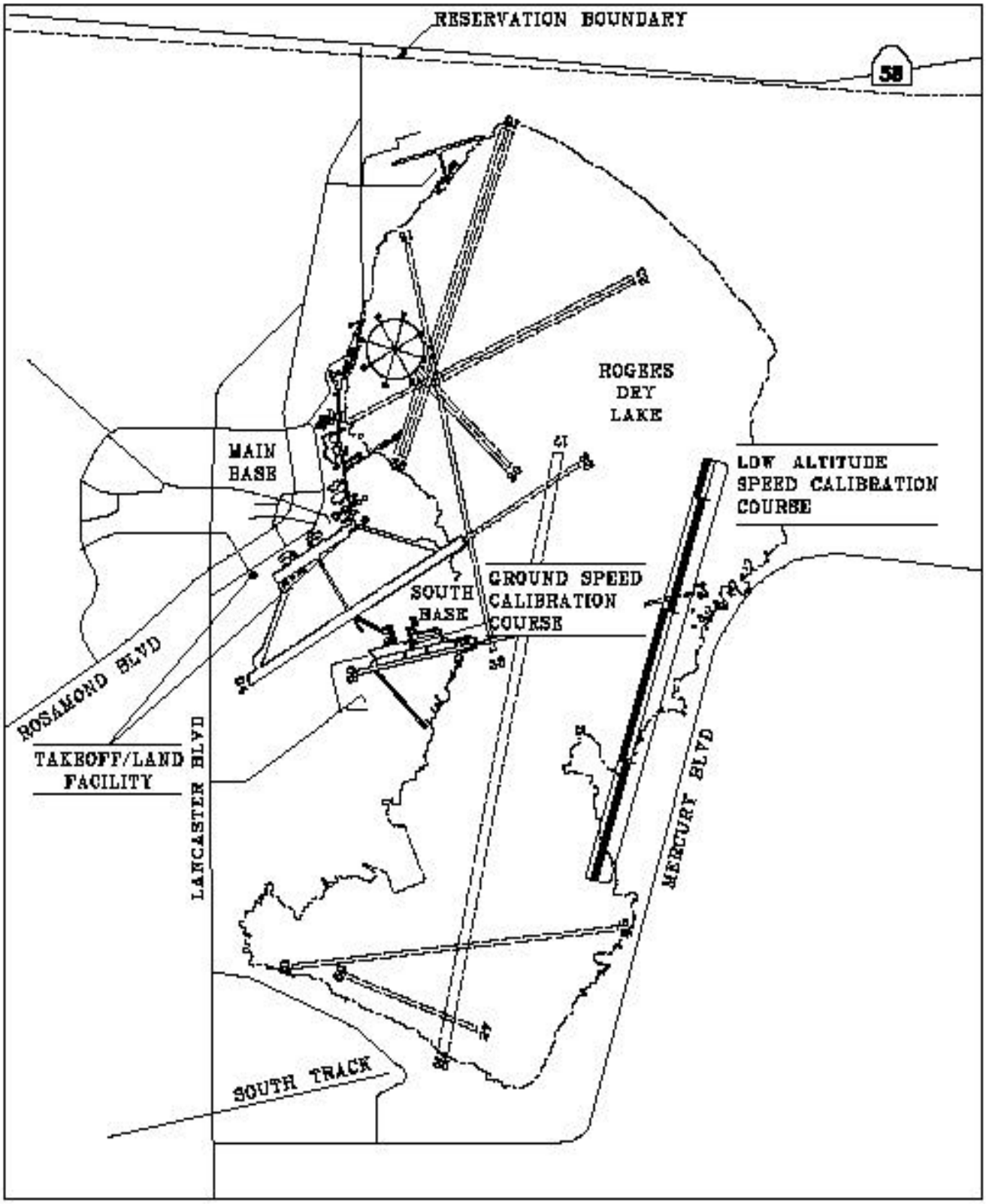


Figure 4.6. South Base Ground Speed Calibration Course.

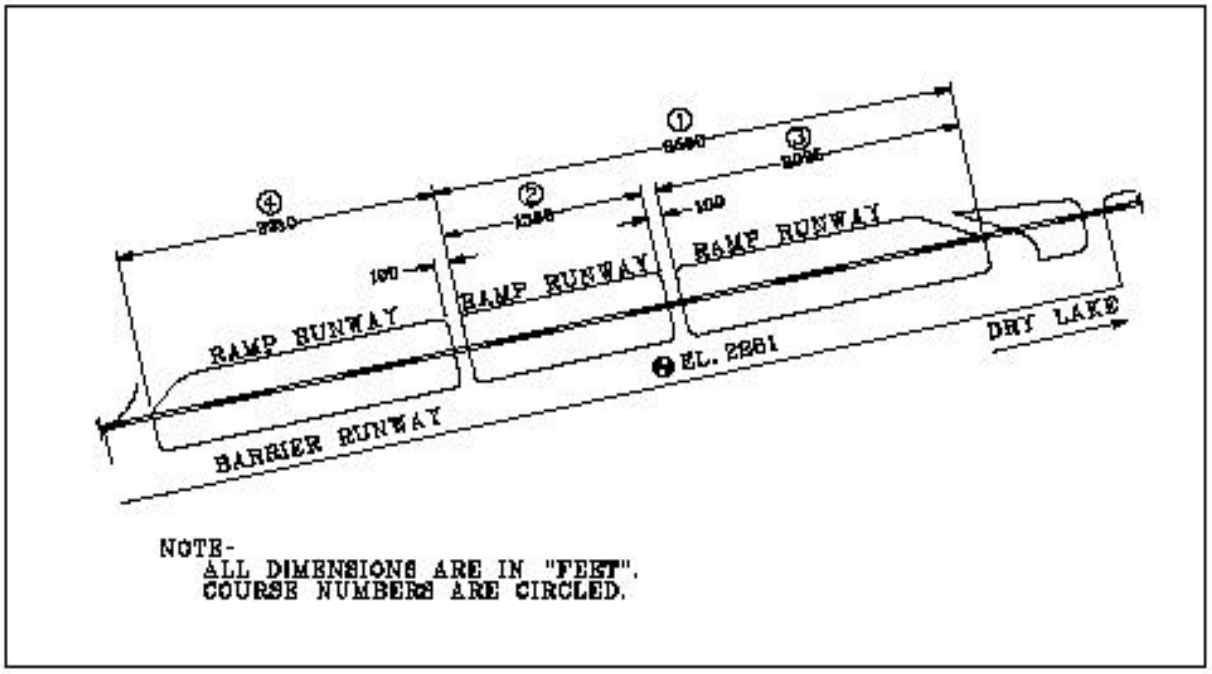
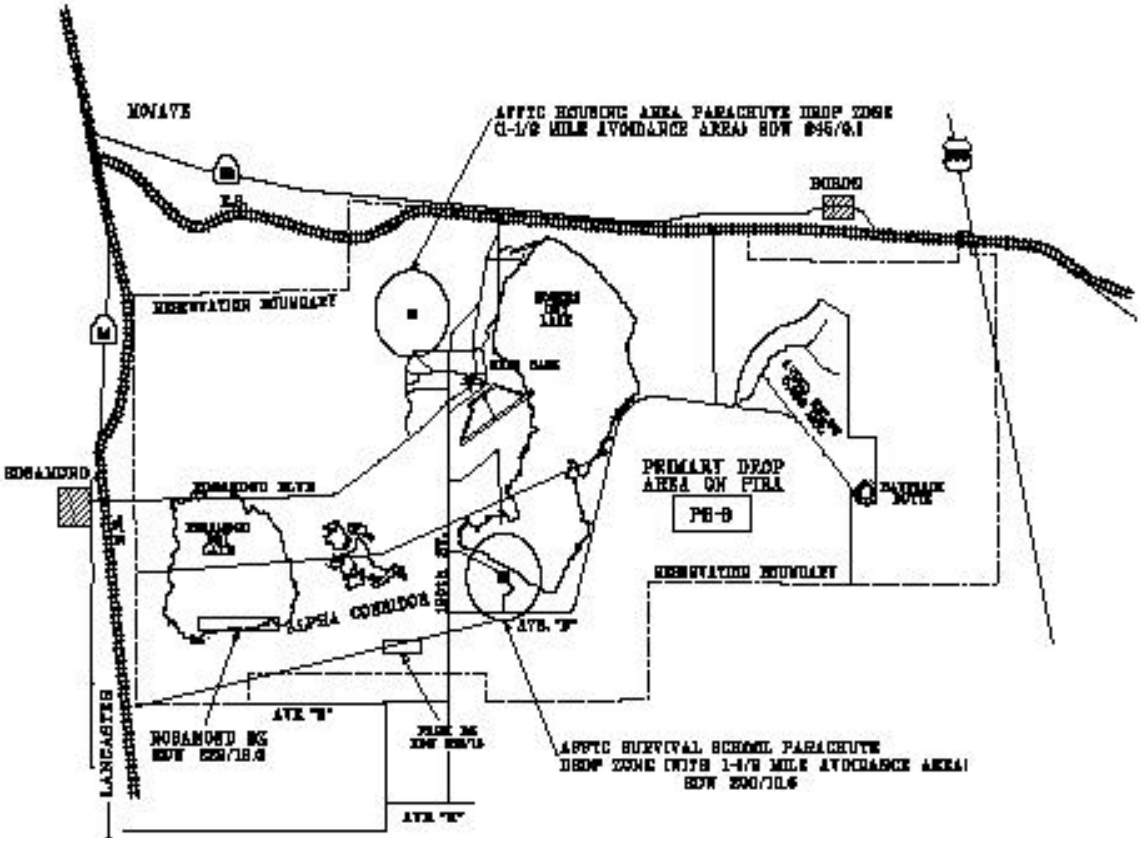


Figure 4.7. Edwards Parachute Drop Zones.



4.9. Drop Zones (Dz). (Fig 4-7)

4.9.1. AFFTC Survival School Parachute DZ. A square area 600 yards per side with a center at 34½49’35”N, 117½52’40”W (EDW 200/10.6). The parachuting area is an avoidance area radiating one and a half (1.5) miles from the DZ center (Surface [SFC] to 5,000' above the active altitude). This area extends east and west along the entire south lakeshore of Rogers Dry Lake. On the north, it is bordered by the intersection of Lakebed Rwys 7/25 and 17/35. On the south, the area is bordered by Avenue (Ave) B, about one half (1/2) mile south of the old South Base sled track.

4.9.1.1. The Survival School DZ procedures are the same as the standard Alpha Corridor procedures. Although the Alpha Corridor is closed to all VFR traffic when the DZ is active, the PIRA and portions of the Alpha Corridor may be used by other controlled traffic concurrently with the DZ provided the one and a half (1-1/2) mile avoidance area is clear from the surface to 5,000' above the active altitude.

4.9.2. Farm Drop Zone. A plowed area in the Alpha Corridor, with a center at 34½47’30”N, 117½57’01”W (EDW 210/16). Farm DZ activity includes heavy equipment and personnel airdrops by cargo aircraft. The Alpha Corridor and Buckhorn MOA are activated during test parachutist activities. When this area is in use, Lancaster or Buckhorn arrivals/departures may be approved provided all aircraft are under radar control. The Farm DZ is midway between these two routes. SPORT has final approval authority for concurrent operations.

4.9.2.1. The Alpha Corridor is active when the Farm DZ is used for AFFTC test parachutist operations. Helicopter pilots must advise tower which DZ is being used. When helicopters are dropping parachutists, SPORT may safely approve Lancaster and Buckhorn VFR arrivals and departures provided the VFR routes are properly flown. SPORT advises aircraft approved for either Lancaster or Buckhorn arrival/departure that the Farm DZ is active. Pilots flying the Lancaster or Buckhorn routes must adhere to the published procedures. Aircraft contacting tower requesting to cross the Alpha Corridor will be sent to SPORT for radar monitored approved crossings.

4.9.3. Housing Area Drop Zone. Located north of the base housing area about three and one half (3.5) miles south of Hwy 58. The DZ center is 34½57’28”N, 117½56’35”W (EDW 246/10.5). The parachuting area, when active, includes an avoidance area radiating one and a half (1.5) miles from the DZ center. When the DZ is active, all aircraft must avoid the DZ center by at least one and a half (1.5) miles or remain above the drop altitude. No drop operations will be scheduled higher than 13,000' MSL and the area will be activated no higher than 500' above the highest drop altitude.

4.9.3.1. All drops are controlled by Edwards tower, SPORT, and a DZ Control Officer. A three (3) minute (min) call precedes all drops. e.g., "Three (3) minutes to live drop." Tower activates the DZ by coordinating with SPORT. SPORT notifies all affected aircraft of the drop zone status. Drops can be stopped at any time by a "knock it off" call.

4.9.3.2. The DZ is limited to non-static line drops only. All release points are inside the one and a half (1 1/2) mile avoidance area. Maximum drop altitude is 13,000' MSL. Joint operations require prior coordination.

4.9.4. Rosamond Drop Zone. Located on Rosamond Dry Lakebed, SW of the approach end of emergency Rwy 29. The DZ center is 34½48’10”N, 118½04’W (EDW 222/19.5). Activity includes heavy equipment and personnel drops by cargo aircraft.

4.9.4.1. Use standard Farm DZ/Alpha Corridor procedures. Advise Tower which DZ is to be used.

4.9.5. California City Drop Zone located in the Isabella MOA is one (1) mile SW of the California City airport with parachuting from 17,500' MSL.

4.9.5.1. California City Drop Zone (not in confines of Edwards AFB or R-2515). Edwards-based aircraft or aircraft supporting Edwards test parachutists conducting military test/training jumps at the California City DZ will notify JOSHUA/SPORT five (5) minutes prior to initiating the first jump of any lift to include altitude and duration of that lift's jumping activity.

4.9.6. Simultaneous Operations (Farm or Survival School DZ):

4.9.6.1. When scheduled Paradrop missions are on standby, the mission jumpmaster begins coordination for simultaneous operations. Normally attempt simultaneous operations for the Farm DZ only; however, a few test profiles may allow simultaneous operations at the Survival School DZ. Critically analyze the proximity of the School DZ to activity in West PIRA prior to agreeing to conduct simultaneous operations. If simultaneous operations at either of these DZs cannot be worked out attempt to move the mission to the Housing Area DZ.

4.9.6.2. At takeoff, the jump aircraft/helicopter pilot calls SPORT on mission frequency and request clearance into the Alpha Corridor to conduct parachute operations. Advise SPORT of coordination with conflicting mission pilot and agreement to conduct a simultaneous operation with full knowledge of the other operation.

4.9.6.2.1. The SPORT controller has the option to hold the jump aircraft/helicopter on the ground or at a specific altitude, delay a jump, or cancel the parachute mission if safety becomes a factor.

4.9.6.2.2. The jump aircraft/helicopter must receive SPORT clearance before lift off from the DZ. At each lift off, the pilot briefs SPORT on the lift profile.

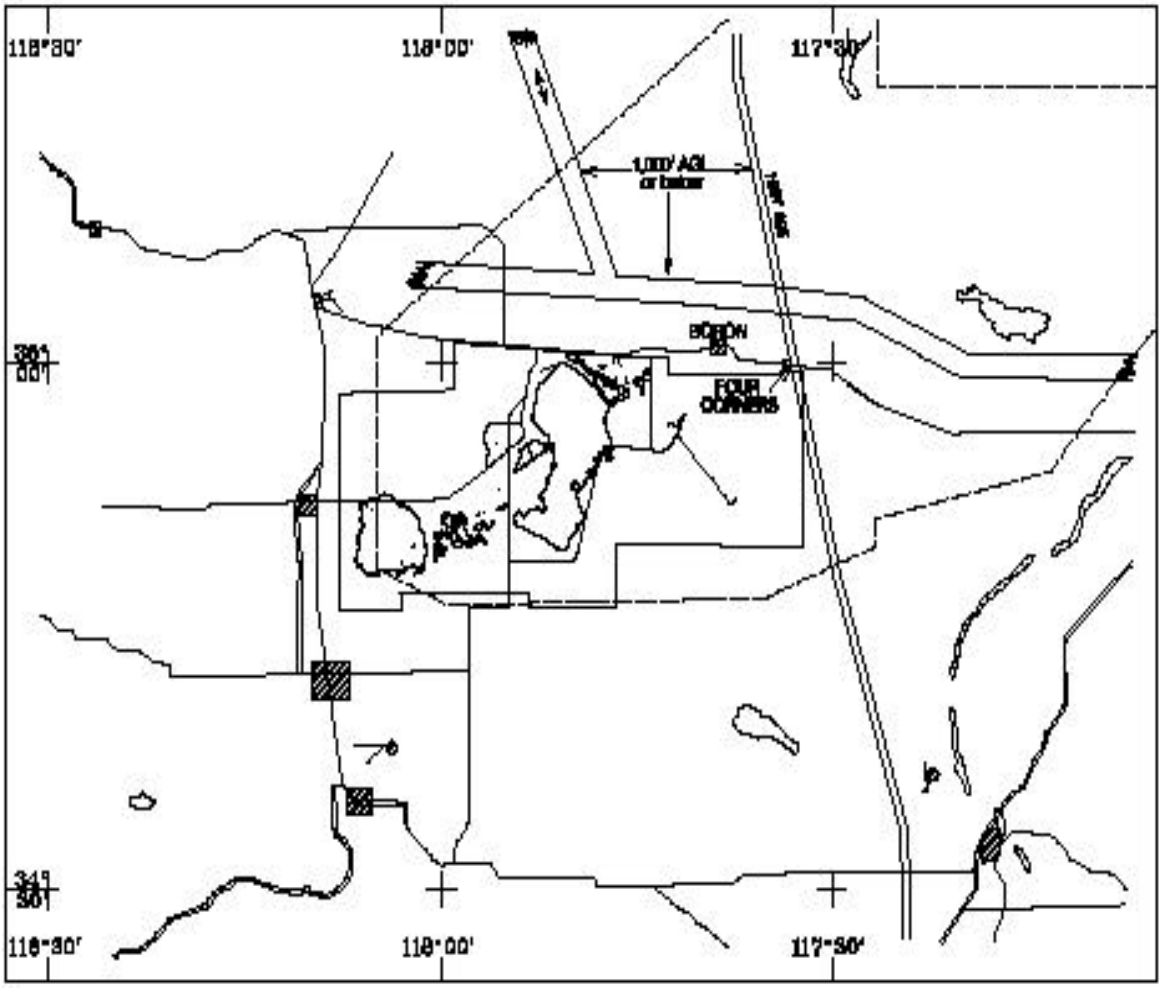
4.9.6.2.3. Make timing calls to Search One (three (3) mins, two (2) mins, and one (1) min, etc.). At the one (1) min mark the pilot must get clearance from both Search One and SPORT to proceed with the jump.

4.9.6.2.4. At any time during the mission, the SPORT controller, pilot, mission jumpmaster, or the pilot of the higher priority mission may call off the jump mission, if safety is impaired.

4.9.6.3. SPORT exercises control over airborne operations only and not over simultaneous ground operations at the FARM DZ, e.g., SPORT will clear an Aerial Gunnery Tow System (AGTS) dragoff aircraft or C-130 pallet drop aircraft into the Alpha Corridor in conjunction with jump aircraft/helicopters after proper pilot-to-pilot coordination. Clearance for the AGTS/load drop must come from a ground safety representative physically present at the drop site.

4.10. General Aviation Transit Routes. (Fig 4-8)

Figure 4.8. General Aviation Transit Routes.

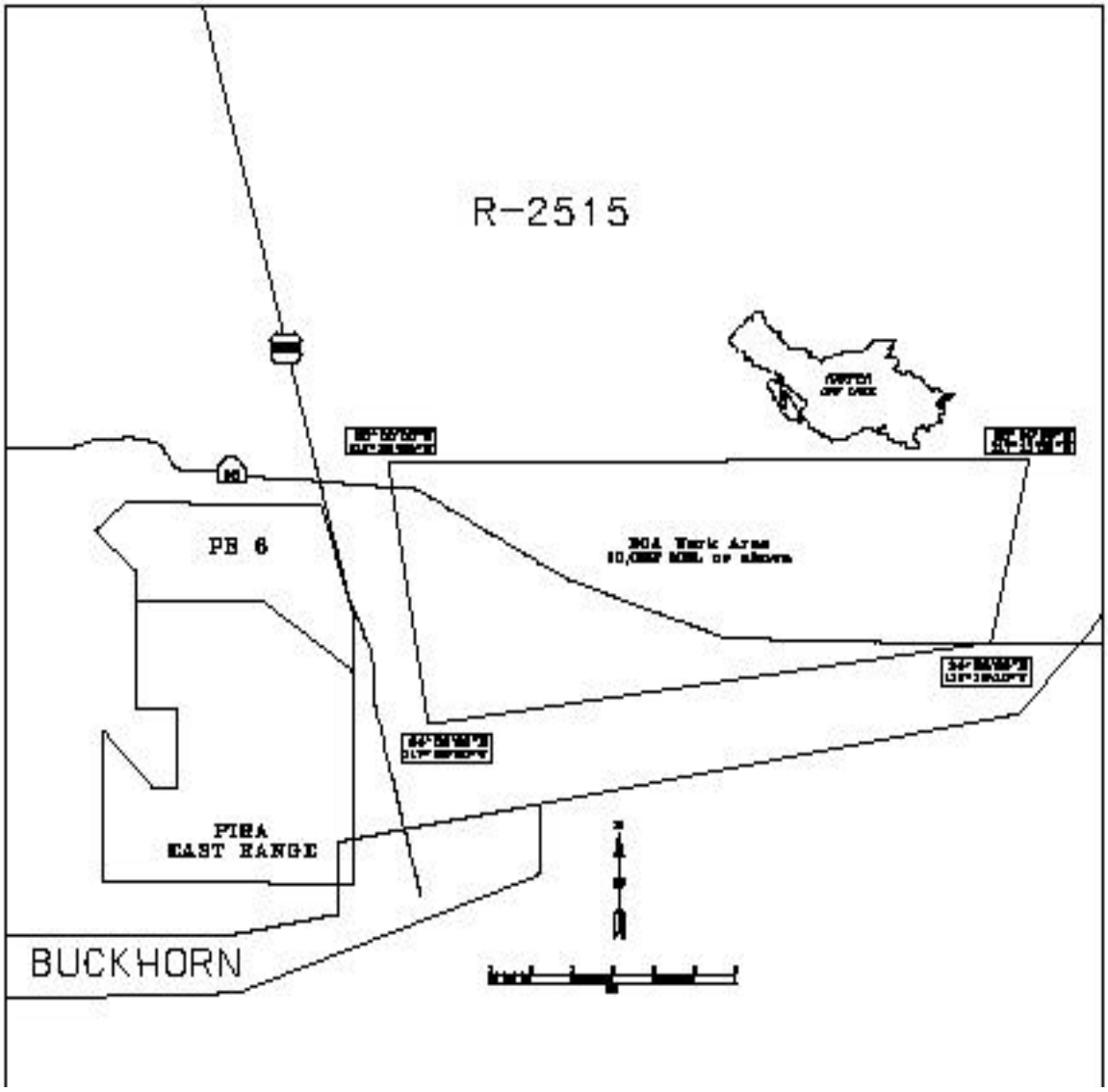


4.10.1. These routes allow general aviation operations to and from Boron, North Edwards, and Kramer Junction airports and for authorized civilian aircraft in conjunction with official duties to transit following Highways 395 and 58 when R-2515 is active. Conditions and procedures are covered by Letter of Agreement with individual pilots based on valid access requirements. Civilian aircraft maintain at or below 1,000' AGL and remain within one quarter (1/4) mile north of Highway (Hwy) 58, Hwy 395, or along the EDW 330½ radial.

4.11. Four Corners ROA Work Area. (Fig 4-9)

4.11.1. Located east of Kramer Junction (intersection of State Highways 58 and 395), this area allows a ROA to operate in a defined area segregated from manned aircraft. SPORT advises aircraft when this SUA is active. Manned aircraft may underfly/overfly the block altitude assignment by 2,000’ or as determined by a Safety Review Board (SRB).

Figure 4.9. Four Corners ROA Work Area.



Chapter 5

GROUND PROCEDURES

5.1. Clearance Forms.

5.1.1. References are AFI 11-401, *Flight Management*, Air Force Material Command (AFMC) Supplement (Sup) 1, and AFFTC Sup 1.

5.1.2. AFMC FM 83, **Local Flight Clearance/Flight Authorization**. Used as the flight plan authorization for local area flights. See AFI 11-401, AFMC Sup 1, Atch 8 (added) for instructions for usage.

5.1.2.1. AFMC FM 82, **Flight Authorization**. Used for flights terminating or stopping over at any airport outside R-2508 and the area south of R-2508 controlled by JOSHUA. See AFI 11-401, AFMC Sup 1, Atch 7 (added) for instructions and usage. For these flights, the AFMC FM 83, if used, will be annotated, "For Tracking Only."

5.1.2.2. VFR flights in Edwards-based aircraft to and from approved operating locations do not require a DD FM 175 or AFMC FM 82 when logging the flight on an AFMC FM 83 and using coordinated flight following procedures. Coordinate flight following procedures with 412 OSS/ OSCS. Direct requests for approval of specific operating locations to use these procedures to 412 OSS/OSCS.

5.1.3. Before departing, the AC is responsible for completing the clearance portion of AFMC FM 83, if required, as follows:

5.1.3.1. Estimated time enroute (ETE) and fuel endurance in hours and minutes.

5.1.3.2. AC signature and current Flight Crew Information File (FCIF) number. The AC's signature indicates compliance with AFI 11-206 requirements and the following:

5.1.3.2.1. Flight briefing has been completed according to the mission briefing checklist.

5.1.3.2.2. Crew is current and qualified in the aircraft, as required.

5.1.3.2.3. Crew has current aircraft publications.

5.1.3.2.4. All crewmembers signed the current FCIF.

5.1.3.2.5. Weight and balance data were reviewed as required/applicable.

5.1.3.2.6. Flight planning guides were reviewed.

5.1.3.3. Annotate the planned alternate, if required, and ETE to the alternate.

5.1.4. Use DD FM 175 for:

5.1.4.1. IFR flights planned to depart R-2508 and/or the area south of R-2508 controlled by JOSHUA (Lancaster/Palmdale area at or below 13,000' MSL).

5.1.4.2. Local IFR flights when the Complex airspace has been released to FAA for joint use (normally from 1800L to 0600L and on weekends). Check with Current Operations (73940), CCF (72508), or JOSHUA (72023) to determine if the airspace will be active for military use or if released to the FAA for joint use.

5.1.4.3. Requesting the High Altitude Supersonic Corridor outside of R-2508.

Note: Aircrews delaying within R-2508 on a Pancho Two clearance and whose destination is other than EDW, should contact Pilot to Dispatcher (PTD) (372.2) for relay of flight plan activation to the destination airport in order to prevent a No Flight Plan Arrival.

5.1.5. Use DD FM 1801, Department of Defense (DOD) International Flight Plan, for international flights in accordance with Flight Information Publication (FLIP), General Planning (GP), Chap 4.

5.2. Fuel Planning .

5.2.1. The following are fuel minimums for Edwards aircraft. The Pilot in Command (PIC) will ensure fuel reserves comply with Air Force and Air Force Material Command (AFMC) requirements. In no case will fuel reserves be less than the minimum fuel specified in Table 5-1.

5.2.2. Normal fuel: Fuel planned to be on board at the final approach fix, initial pattern entry, or downwind leg, as applicable.

5.2.3. Minimum fuel: The remaining usable fuel supply dictates the need for traffic priority to ensure a safe landing with required reserves.

5.2.4. Divert Fuel. A briefed fuel state that allows for one (1) approach and a divert to the nearest available alternate. Aircrew should plan to land at the alternate with a fuel state greater than minimum fuel.

5.2.5. Emergency Fuel. The remaining usable fuel supply dictates the need for traffic priority to ensure safe landing.

Table 5.1. Fuel Minimums.

Aircraft	Normal Fuel	Minimum Fuel	Emergency Fuel
F-15	2,000 pounds	1,500 pounds	1,000 pounds
F-16	1,000 pounds	800 pounds	600 pounds
B-1	20,000 pounds	16,000 pounds	12,000 pounds
B-2	18,000 pounds	14,000 pounds	10,000 pounds
B-52	25,000 pounds	20,000 pounds	15,000 pounds
KC-10	16,000 pounds	14,000 pounds	12,000 pounds
C-12	600 pounds	500 pounds	400 pounds
C-17	20,000 pounds	16,000 pounds	12,000 pounds
C-18	12,000 pounds	10,000 pounds	8,000 pounds
C-130	6,000 pounds	5,000 pounds	4,000 pounds
C-135	12,000 pounds	10,000 pounds	8,000 pounds
C-141	12,000 pounds	10,000 pounds	8,000 pounds
T-38	800 pounds	600 pounds	400 pounds
T-39	1,000 pounds	800 pounds	600 pounds

5.3. Briefing (Ref AFI 11-206, AFMC Sup 1, paragraph (para) 2.4).

5.3.1. The briefing guides in Atch 4 include the minimum items to cover. Flying units may tailor these guides to their specific missions as long as all required items are covered.

5.3.2. Consider all personnel, including the Very Important Person (VIPs), who will occupy mandatory crew positions for any portion of a flight as crewmembers of that flight, and brief according to AFI 11-206, as supplemented. Personnel who are not qualified in the aircraft will receive an expanded briefing at the aircraft with proper demonstrations including hazards, operating handles and switches, emergency procedures, and any other information needed to assure flight safety.

Table 5.2. Preflight Checklist.

	AUTHORIZED LIST
	EGRESS CURRENCY
	FCIF
	WEEKLY TEST
	ALSSAFECOM/FLYING SAFETY BOOK
	PUBLICATIONS
	CHECKLIST
	IFR PUBLICATIONS
	TOs
	PARTIAL FLIGHT MANUAL
	SURVIVAL EQUIPMENT
	LPSs (OVER WATER FLIGHTS)
	G-SUITS
	WEIGHT AND BALANCE
	TRAVEL ORDERS (CROSS COUNTRY)
	FILE DD FM 175 (CROSS COUNTRY, O/B, ROUND-ROBIN)
	AFMC FM 83/AFMC FM 82
	BINGO FUEL/DIVERT FUEL
	TOLD CARD
	FLIGHT QUALIFICATION CARD (NONCREW MEMBER)
	MISSION/ALTERNATE MISSION CARD
	AFFTC FMS 5028 & 5028A (SAFETY REVIEW & HAZARD ANALYSIS)

5.3.3. Brief chase missions by telephone only when circumstances prevent a face-to-face briefing. The flying supervisors (squadron commander) of the units in the test mission must approve telephone briefings on a case-by-case basis. If the test program involves a number of similar missions requiring telephone briefings, the test agency sends a letter to the commander of the unit providing aircraft support outlining support aircraft (chase, pace, air refueling, etc.) procedures and requesting approval for telephone briefings. Support aircrews use this letter to supplement the telephone briefing, and the appropriate briefing guide (Atch 4). Where air refueling is conducted on test missions for the sole purpose of extending mission length, and approved air refueling procedures exist, use routine USAF

scheduling and mission briefing practices. If any portion of the test involves air refueling envelope determination or expansion, or air refueling system testing, face-to-face or telephone briefings are required.

5.3.4. File Flight Test Cards and mission cards (non-test) in a readily accessible location in the unit operations section for all test and training missions. Keep mission cards for the day of the flight only. Canned proficiency/Flight Test Technique (FTT) missions or TPS syllabus missions require no supervisory approval. Have all other mission cards approved by the operations supervisor or representative. Brief the operations supervisor or representative on all unusual items such as low level navigation or missions outside the R-2508 Complex. If unforeseen changes occur, file alternate mission cards by radio, on the ground, or in the air. In this case, pilots contact their operations section, which completes and approves a mission card in the normal manner before starting the alternate mission. Cross-country mission cards shall comply with the requirements of Atch 8. Post a preflight checklist, similar to Table 5-2, in a conspicuous location near the sign-out area to assist aircrews in performing mission card and other preflight items.

5.3.5. Give the squadron commander or operations officer a general briefing before departing to a remote site. Unit operations section responsibilities may be delegated to test teams located at remote sites.

5.3.6. The operations officer or designated representative approves crewmember changes. When a change is required, adequately brief the replacement crewmember, even at the expense of a mission delay.

5.4. R-2515 and ISABELLA Work Area Special Planning.

5.4.1. R-2515 and an area of the Isabella Work Area south of a line extending from California City to one mile north of Tehachapi are used for test and test support missions only. Other AFFTC missions should avoid this area except to transit to/from the outlying work areas. The current TPS policy, identifying where curriculum missions may fly, meets the intent of this restriction. This restriction may be relaxed if test/test support activity is low. The AC determines this prior to flight by calling the SPORT supervisor (73928, 73931). Coordinate a work area or block altitude with SPORT to assure no interference with test missions planned or in progress.

5.4.2. Telephone the SPORT supervisor to request observed flight activity and provide a mission briefing at least 30 minutes prior to scheduled departure with the following:

5.4.2.1. Call sign(s).

5.4.2.2. Type aircraft.

5.4.2.3. Chase aircraft.

5.4.2.4. Tail number(s).

5.4.2.5. Mission frequency.

5.4.2.6. Preferred/required working area. (Daggett Shelf, if needed).

5.4.3. Pilots conducting missions within the Edwards Class D Airspace (Tower Flyby, Airshow Practice, lakebed operations, etc.) will brief the Tower Supervisor at ext. 7-2123 or 7-2122 prior to flight.

5.5. Ground Communications.

5.5.1. Contact 412 OSS/OSCS (CONFORM 304.0) before engine start if aircraft/ground power is available; otherwise, before taxi. Include operations number, call sign, type aircraft, tail number, ready-to-start or ready-to-taxi. Request through CONFORM last chance inspection for missions after normal duty hours.

5.5.2. CONFORM accepts blanket calls from flight leaders for wingman/support aircraft. Flight leaders make such calls only when able to visually confirm the identity of the other crews. Any time the flight leader is unable to make this visual confirmation, each aircraft must make a separate call.

5.5.3. CONFORM electronically transmits confirmation of your call sign/operations number to tower. If tower does not have this confirmation by the time you request taxi, they will request you to recontact CONFORM.

5.6. Taxiing.

5.6.1. Obtain runway in use, wind and altimeter from ATIS (269.9 or 116.4) before contacting Ground Control for taxi. On initial contact, advise Ground Control you have “ATIS Information ___.” When a taxi clearance is issued, pilots are required to read back runway assignment. Maintain radio contact with Edwards Ground. Heavy/large aircraft contact tower abeam "last chance shack" for take-off sequencing instructions. Heavy aircraft should not block the taxiway or access to the runway. This may be accomplished by stopping the aircraft beyond the entry into last chance while remaining well short of runway hold line (200’).

5.6.2. When the flight manual does not specify, use 150' staggered or 300' non-staggered. At night, taxi on centerline with at least 300' spacing.

5.6.3. Opposite direction taxi procedures:

5.6.3.1. Between sunrise and sunset, locally assigned aircraft with a wingspan of 45’ or less are authorized to conduct opposite direction taxi operations on all useable taxiways. Aircraft unable to taxi opposite direction will be given the right-of-way.

5.6.3.2. Refuse opposite direction taxi instructions if you feel it jeopardizes safety.

5.6.3.3. Use taxi/landing light(s), if available.

5.7. Maintenance Quick Check (Last Chance).

5.7.1. Each single- and twin-jet-engine aircraft (except helicopters, T-39s and like types) assigned to AFFTC will have a visual last chance maintenance safety inspection prior to lineup for takeoff. This inspection will be on the pad at the departure end of the active runway and will be a general visual check conducted from the ground only. Communications between the pilot and the marshal will be standard hand signals under AFI 11-218, Aircraft Operation and Movement on the Ground, as supplemented. Inspector safety is of paramount importance during the safety check. Pilots must be aware of the inspector's actions and general location at all times.

5.7.2. Follow the marshal’s directions and stop aircraft at the designated location. Keep controls in a stabilized position and idle throttles. Either set or hold brakes as applicable to type of aircraft. When the marshal gives the chocks inserted signal, display hands at a level where they are visible throughout the inspection. Raised hands prevent accidental actuation of switches or controls that could create a safety hazard for the inspector. The exception to this requirement is to take emergency action.

5.7.3. Exit the last chance area after the marshal and inspector are clear. You may wait for wingman to complete last chance inspection if you taxied as a flight. Do not start turns until reaching the centerline of the taxiway, and keep thrust to the minimum required to move aircraft.

5.7.4. Pilots on cross-country flights, request a maintenance quick check from transient alert.

5.8. Last Chance Calls.

5.8.1. Test mission aircraft operating with SPORT shall contact SPORT on mission frequency or 272.0 in last chance.

Note: Due to equipment limitations, there may be times SPORT cannot provide services on mission frequency. Contact SPORT on either UHF or VHF common (272.0 or 132.75) for services.

5.8.2. Pilots contacting SPORT for equipment checks before taxiing should also include SUA and altitude requirements.

5.8.3. TPS Low L/D missions will use their Last Chance Call procedures.

5.9. Foreign Object Damage (FOD) Control.

5.9.1. Use minimum practicable power to leave parking area to avoid drawing objects into the ducts and blowing objects into aircraft or personnel.

5.9.2. Avoid taxiing where outboard engines overhang the edges of taxiways.

5.9.3. Report any object on the ramp or runway that could be a hazard to aircraft or engine operation to Edwards Tower/Ground Control for prompt removal.

5.9.4. Make an entry in the Air Force Technical Order (AFTO) FM 781 following a lakebed landing.

5.9.5. Release drag chutes at least 300' from the runway to allow large aircraft adequate space to clear the runway (Fig 5-1).

5.10. Flight Abort.

5.10.1. When a flight leader/wing aircraft aborts before takeoff, the remaining aircraft are authorized to fly single ship sorties if an alternate mission was pre-briefed and approved, or the unit commander directs an alternate mission.

5.11. Early Or Late Takeoff.

5.11.1. Charge an early or late deviation when the takeoff is more than 30 minutes before or 30 minutes after the scheduled time. Ensure the appropriate operations dispatcher informs Current Operations if you know you will takeoff late.

5.12. Priority Alpha Designation.

5.12.1. Establishes a priority traffic movement designator used by all AFFTC flying organizations and other agencies using Edwards facilities. It provides information and direction to tower of possible loss of an otherwise productive mission due to delays in takeoff or landing clearance.

5.12.2. Consistent with Federal Aviation Regulations and flying safety, Edwards Tower affords traffic priority to Priority Alpha aircraft (except for emergency aircraft). To be effective, this procedure requires discretion by all aircrew members and briefing officers.

5.12.3. To declare traffic handling priority, notify tower as follows:

5.12.3.1. Departures: Notify Ground Control of required takeoff time upon request for taxi instructions. Example: "Edwards Ground, Muroc 17, request Priority Alpha for One Four Three Three Zulu (1433Z) scheduled departure." Update any changes to required takeoff time as soon as possible.

5.12.3.2. Arrivals: Notify Tower upon initial contact of the requirement for uninterrupted approaches, (i.e. test data point collection). Example: "Edwards Tower, Leahi 41, four (4) miles northeast of the VORTAC, request Priority Alpha straight in, touch-and-go, stay with tower."

5.12.4. The following missions may use the Priority Alpha designator when it is absolutely essential for the successful completion of the mission.

5.12.4.1. Performance takeoffs or landing tests when gross weight, center of gravity, runway condition, etc. are factors critical to mission completion.

5.12.4.2. Refused takeoff tests when gross weight, center of gravity, runway condition, etc. are factors critical to mission completion.

5.12.4.3. Takeoffs of any aircraft when the crew is wearing pressure suits.

5.12.4.4. Missions that require an intercept/tanker rendezvous and timing are critical.

5.12.4.5. Test missions with critical range time.

5.13. After Landing.

5.13.1. Clear to the main ramp side of runway when safety permits and, unless instructed otherwise by tower, turn off at center taxiway. For ejection seat aircraft:

5.13.1.1. Accomplish all after landing checklists items while strapped into the seat.

5.13.1.2. Adjust the seat height and rudder pedals prior to unstrapping.

5.13.2. Contact Ground Control when off the runway for taxi instructions. Crewmembers of 412 TW/LG maintained aircraft will then contact CONFORM to report call sign, tail number, aircraft maintenance status code number and type of maintenance discrepancies, and landing times. Report maintenance status as one of the following:

Code Number	Meaning
1.	No maintenance discrepancies
2.	Minor maintenance. Aircraft is flyable
3.	Major maintenance. Aircraft is grounded.

5.14. Drag Chute Jettison. (Fig 5-1).

5.14.1. Jettison drag chutes on the west, center, or east taxiways at a minimum of 300' in from the main runway.

5.15. Debriefing.

5.15.1. Report unusual occurrences during the mission to supervisory personnel as soon as practicable.

5.15.2. Conduct maintenance debriefing with 412 TW/LTS (Central Debriefing) or the applicable de-briefer, after completing or aborting an assigned mission. Record any fuel dumping activity. Use AF FM 121, **Sonic Boom Log**, to record supersonic flight activities.

5.15.3. Debrief hazardous missions with the primary aircrew and the project engineer or test conductor in attendance. Debrief other missions as required. Brief appropriate supervisors on significant events and test results to include recommended improvement in techniques and procedures.

5.16. AFMC Form 83, Local Flight Clearance/Flight Authorization.

5.16.1. After flight, enter the following on this form:

5.16.1.1. Actual takeoff time.

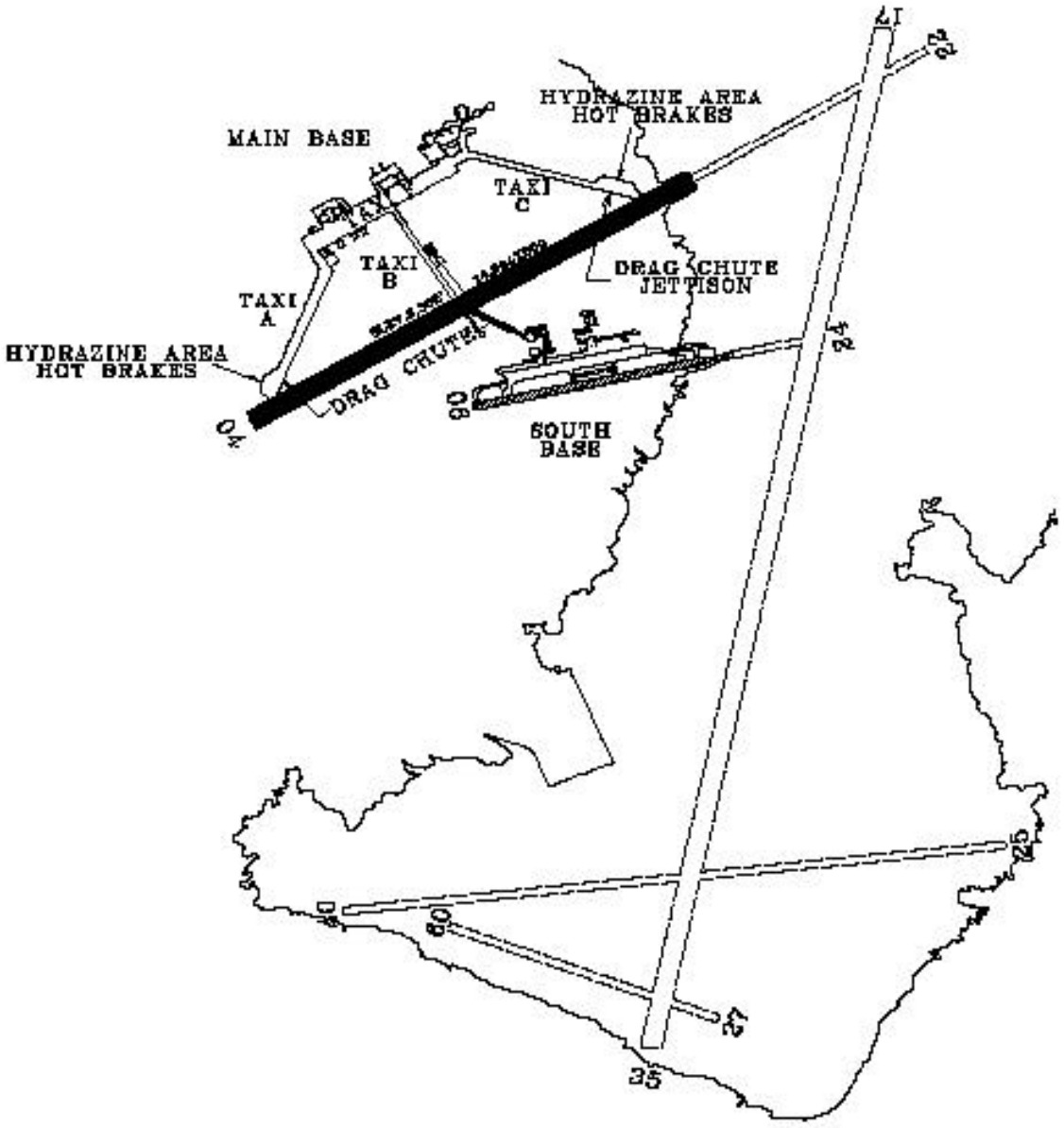
5.16.1.2. Total time logged.

5.16.1.3. Remarks. Mission completed, or give reason for delay/deviations.

5.17. AF Form 121, Sonic Boom Log.

5.17.1. All USAF organizations assigned or attached to AFFTC having supersonic aircraft will accomplish and submit AF FM 121 whenever one of their aircraft flies supersonic. AFI 13-201, *US Air Force Airspace Management*, directs this report. All 412 TW flying units transfer information on this FM into the AFORMS database using Frame BO-OM. The reporting period is from 0001 local Monday to 2400 local Sunday. Direct any questions about this report or data entry to 412 OSS/OSCR at extension 59035.

Figure 5.1. Hot Brakes/Drag Chute Jettison/Hydrazine Areas.



Chapter 6

TAKEOFF

6.1. Takeoff Interval.

6.1.1. Chase aircraft normally use a takeoff interval of eight (8) to 10 seconds. The spacing interval on all chase missions must be considered after reviewing all mission factors such as aircraft type, type takeoff, weapons load, etc. Always consider a possible abort by the lead aircraft.

6.2. Airborne Pickup.

6.2.1. Advise Ground Control of intentions to conduct an airborne pickup on initial contact for taxi instructions.

6.2.2. The minimum altitude for an airborne pickup is 200' AGL. Plan to be in the desired chase position after the takeoff aircraft is safely airborne. Do not fly slower than final turn/final approach airspeed for the aircraft configuration and fuel load.

6.2.3. With pilot concurrence, tower may clear an aircraft for takeoff between elements of an airborne pickup. Aircraft must be of similar type and assigned to Edwards. This procedure is authorized for fighter/trainer type aircraft only.

6.3. Wake Turbulence.

6.3.1. Consider the possibility of wake turbulence for multiple aircraft takeoffs. Follow all applicable flight manual restrictions (see DoD FLIP GP, Chap 5, for FAA and International Civil Aviation Organization (ICAO) wake turbulence separation criteria).

6.4. Runway Delay.

6.4.1. On initial contact with Ground Control, advise of the mission’s intentions which will require undue delay (to include airbrone pickups) on the runway.

6.5. Lakebed Takeoffs.

6.5.1. Light aircraft powered by reciprocating or turboprop engines and C-130 aircraft may make lakebed takeoffs at the AC discretion. Other AFFTC aircraft may make takeoffs from lakebed runways when the main runway is closed and it is absolutely essential the mission go at the scheduled time. For this situation the following procedures apply:

6.5.2. During pre-mission planning, the AC, unit commander, or project officer calls CONFORM with the type aircraft, mission number, lakebed runway to be used, and reason for request. CONFORM verifies availability of the requested lakebed runway and gets takeoff approval from 412th Operations Group (OG)/CC. If 412 OG/CC grants approval, CONFORM notifies 412 OSS/OSAM (Airfield Management, ext. 73808) and requests a radio equipped vehicle escort the aircraft to the lakebed runway.

6.5.3. Make pre-takeoff engine checks on the hard surface area before taxiing onto the lakebed. To minimize lakebed damage, do not plan afterburner takeoffs unless essential for safety or required by the aircraft flight manual.

6.5.4. Obtain tower approval prior to entering the lakebed.

6.5.5. Lakebed obstructions. Any obstructions will be some distance from the edges of the lakebed runways; however, consider their presence when selecting a runway for an emergency if there is a possible lack of directional control.

6.5.6. Lakebed intersection departures are not authorized. The lakebed runways have no suitable distance remaining markers and not all intersections are visible from the tower, potentially leading to a misapplication of separation standards. In the event a mission requirement exists for an intersection departure from a lakebed runway, the aircrew must obtain approval from the 412 OG/CC or designated representative.

6.6. Special Runway Procedures.

6.6.1. All departures, missed approaches, low approaches, and touch and go landings will not climb above 3,300' until departure end of the runway.

6.6.2. Tower has 412OG/CC approval to use both sides of the runway for base-assigned fighter/trainer-type aircraft departures, i.e. "Cobra 01, cleared for takeoff, left side; Cobra 02, taxi into position and hold, right side." It is the pilot's responsibility to assure required wake turbulence separation.

6.6.3. Intersection departures are not authorized for base assigned tactical/fighter, trainer/attack type aircraft such as F-15, F-16, or T-38. Other aircraft may use only the Main Base Rwy 4/22 intersection with 7,500' available.

6.7. Instrument Departure Procedures.

6.7.1. When Departing under Instrument Meteorological Conditions (IMC), use the departure procedures published in the FLIP. This is an IFR ATC clearance and not a complex clearance until you specifically request it from JOSHUA/SPORT after reaching VMC.

6.8. Noise Abatement Procedures.

6.8.1. Aircraft departing Rwy 22 on a Pancho Two shall initiate turnout in order to remain west of and avoid the base hospital and housing areas. When requested and authorized by ATC, low performance aircraft are authorized a short turn out to remain between the base housing and dormitory areas.

6.8.2. Aircraft departing Rwy 22 on an IFR clearance (VMC conditions) will be instructed by the control tower to "Fly runway heading until 12 DME then (climb-out instructions)."

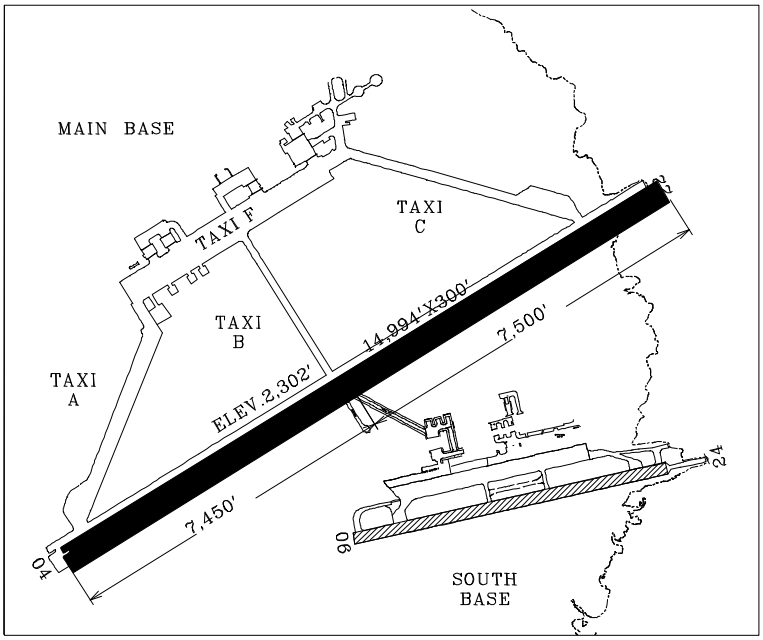
6.8.3. There are no noise abatement procedures for Rwy 4.

6.9. Intersection Departures. (Fig 6-1)

6.9.1. Intersection departures may be requested by aircrews on Rwy 4/22. Due to the limited number of taxi routes available for arriving aircraft, aircraft wishing to depart from the intersection may experience delays for arriving aircraft taxiing from the runway on Taxiway Bravo. Aircraft desiring an intersection departure will make their request with Ground prior to entering Taxiway Bravo.

6.9.2. Intersection departures have 7,450 feet available when departing Rwy 22 and 7,500 feet available for Rwy 4.

Figure 6.1. RWY 4/22 Intersection Departures.



Chapter 7

IN-FLIGHT PROCEDURES

7.1. Pilot In-Flight Responsibilities.

7.1.1. Remain in the Work Area(s) and clear of all internal restricted areas, bombing ranges, and drop zones unless cleared by proper agency. Consider the PIRA, Alpha Corridor, spin areas, refueling areas, Cords Road, and Edwards parachute drop zones hot at all times. Do not fly in/through these areas without clearance until you ensure the areas are cold.

7.1.2. Acknowledge traffic information whenever possible unless cockpit duties prohibit.

7.2. External Stores.

7.2.1. When carrying live or heavy weight ordnance/stores avoid populated areas to the maximum extent.

7.3. Fuel Dumping Procedures.

7.3.1. Within the R-2508 Complex, unless emergency or test conditions dictate, do not dump fuel. Emergency/test fuel dump above 5,000' AGL. Time permitting, notify the controlling agency/facility of intention, altitude, location, and completion. Record fuel dumped in AFTO FM 781 (T.O. 00-20-5).

7.4. AFFTC Air Refueling (AR) Operations.

7.4.1. All refueling areas in the R-2508 Complex (see Figure 2.6.) will be considered hot unless confirmed cold by the controlling agency.

7.4.2. Aircrews operating within the vicinity of R-2508 Complex refueling areas (Isabella, Coaldale, and Shoshone), should be extra vigilant for tanking formations. If a tanker formation is observed visually or by radar, aircrews should avoid the formation by a minimum of 2,000’ vertically and five (5) miles horizontally. This separation is necessary to preclude the risk of an emergency breakaway/ maneuvering on the part of the tanker formation.

7.4.3. Use of the Edwards’ Modified Refueling Area requires Director of Flight Operations (DFO) approval; this will normally be obtained as part of the test planning process.

7.4.4. General Procedures.

7.4.4.1. Conduct refueling within a 3,000' altitude block. Altitude blocks are separated by 1,000'. AR altitude block is normally FL200 to FL230 with the tanker at FL220, commensurate with mission requirements, aircraft limitations, and weather.

7.4.4.2. Tankers. Fly a race track pattern using 30o bank left turns. For holding, use 10 NM legs and 30o bank left turns. Fly the requested refueling area until refueling is completed. Call early turns to the radar monitoring agency. Remain in the designated area, as deviation may place the mission outside of Complex airspace.

7.4.4.3. Receivers. Do not proceed to within five (5) NM of the tanker until the following is accomplished:

7.4.4.3.1. Contact tanker on AR frequency and provide the tanker pilot your range and position with reference to the tanker aircraft.

7.4.4.3.2. Obtain status of refueling operations to include number of aircraft on the tanker and other aircraft merging for AR operations.

7.4.4.4. Once in contact with the tanker and when requested by tanker crew, pass call sign, tail number, and operations number (for mission symbol 04 or 05) or Job Order Number (JON) (for mission symbol 03, 06, 07 or 08).

7.4.4.5. Post AR. Do not depart from a standard formation with the tanker (no more than one (1) mile laterally or longitudinally and within 100 feet vertically until post AR checks are complete and radio and radar contact have been established with applicable controlling agency (e.g. SPORT/JOSHUA).

7.4.5. Communications Procedures.

7.4.5.1. The tanker receives traffic advisories on ATC frequency. The primary refueling frequency for AFFTC is 354.4. Missions requiring the tanker to monitor the test mission frequency will prebrief the tanker crew. Random receiver refueling or dry hook ups should not be accomplished on the test mission frequency of the primary receiver. Other units may be using the Isabella refueling area. Normally these units will use 234.825.

7.4.5.2. Frequencies authorized for use in refueling areas are:

7.4.5.2.1. Coaldale refueling area	(OAL 155/60-90)	252.175
7.4.5.2.2. Shoshone refueling area	(BTY 150/60-40)	272.175
7.4.5.2.3. R-2515 refueling area	(EDW 068/09-49)	339.225
7.4.5.2.4. Triad refueling area	(GFS 262/75-105)	375.025

7.4.6. Specific Area Procedures.

7.4.6.1. Isabella Area. Minimum refueling altitude 15,000' MSL. From PMD 345/35 proceed outbound on the PMD 345R to the 75 DME fix, then turn left to parallel track south. Suggested turn point to intercept the outbound refueling area is the PMD 325/37 (35½13”N, 118½19”W). If using larger radius turns (less than 30o bank), schedule Bakersfield and Porterville areas in advance to avoid potential spillout.

Note: These areas are not always available.

7.4.6.2. Triad Area (R-2524, R-2502). Schedule this area in advance to de-conflict R-2502, R-2524, and Goldstone activities. Enter on the PMD 030R to intercept the GFS 262R, turn right to track inbound on the 262R, and turn left at the GFS 262/75 to parallel the refueling track outbound. Suggested turn point to reestablish on the 262R is the GFS 268/106 (35½30”N, 117½16.3’W). Prior to using this area, coordinate with JOSHUA to ensure the refueling altitude is above the restricted area overflight altitudes for R-2524, and R-2502. GFS is usable only above FL250. For lower altitude refueling, use INS.

7.4.6.3. Coaldale Area. Schedule this area in advance to de-conflict from other R-2508 Complex activities. Minimum refueling altitude is 10,000’ MSL. From the OAL 155/60 (37×13’N, 117×33’W) proceed outbound on the OAL 155R to the 90 DME fix (36×31’N, 117×27’W), then left turn to parallel the track northbound.

Note: Do not go east of the OAL 143R.

7.4.6.4. Shoshone Area. Schedule the Shoshone MOA and/or Shoshone ATCAA in addition to the normal work areas included in the Pancho Two clearance. Minimum refueling altitude is 12,000’ MSL. Enter at the BTY 150R 60 DME fix (35×50’N, 116×26’W). Proceed inbound on the BTY 150R to the 40 DME fix (36×09’30”N, 116×32’W), then turn left to parallel the track southbound.

7.4.6.5. R-2515 Area. From PMD, proceed to EDW, and out the 068R. File for the 068/20 DME fix and hold north of the fix, nonstandard left turns, outbound from the 20 to 30 DME fixes until refueling and between refuelings. After join-up, conduct refueling in the 40 NM racetrack pattern out the 068R to the 49 DME fix, left 30o bank turn to parallel the outbound ground track. The suggested turn point to intercept and proceed out on the 068R is the EDW 008/15 (35½13.5’N, 117½36.3’W). Do not deviate south of the 068R as this places the flight outside restricted airspace.

7.4.6.5.1. Use the modified area for AR below 15,000' MSL. When refueling altitude is below overflight altitudes for R-2502, and R-2524, tankers turn at EDW 068/34 to remain west of R-2502 and south of R-2524 (Remain south of EDW 052/38). Use this procedure anytime the overflight altitude of R-2502 is above the refueling area altitude unless Fort Irwin scheduling specifically authorizes refueling in their airspace below overflight altitude.

7.4.6.5.2. The Isabella and Triad Areas are primary and should be used to the maximum extent possible. If airspace restrictions or mission requirements preclude using Isabella or Triad Areas, use the R-2515 Area. Refueling in R-2515 and the Triad Areas simultaneously is authorized when using separate altitude blocks and each block is separated by 1,000'. The desire to save time and fuel while flying to and from the AR Area does not constitute a mission requirement and does not justify R-2515 Area use.

7.4.6.6. Test missions needing AR to extend the mission may use standard USAF refueling procedures. Missions solely to test the AR compatibility of the aircraft require a face-to-face briefing.

7.4.6.7. AR test missions may obtain Work Area clearances for AR tests and will not be required to stay within the confines of the existing area when longer legs are needed for that particular test.

7.5. Night Operations.

7.5.1. Normally, plan night landings at Edwards to terminate out of an instrument approach when Rwy 22 is active; however, VFR patterns are authorized.

7.5.2. Do not make night formation takeoffs or landings unless specifically authorized by 412 OG/CC or an authorized representative.

7.5.3. Navigation lights should be in the bright/steady position when starting and while in the quick check inspection area to aid ground crews with their procedures. During all night taxi operations, the position lights will be on bright/flash, unless specified otherwise by the aircraft flight manual (steady position is used with strobe lights).

7.5.4. Lights off operations: Due to the joint use of R-2508 restricted area, "lights off" operations are not authorized in R-2508. "Lights off" operations must be contained within the internal restricted areas, i.e., R-2515, R-2505, R-2524, etc. Units that require "lights off" operations shall contact the

scheduling agencies of R-2508 Complex internal restricted areas to determine if these operations may be authorized. Aircraft position lights shall remain on while transiting to and from the scheduled restricted area but may be turned off as authorized within the internal restricted area (excludes R-2508). Pilots shall advise the controlling agency when commencing/terminating "lights off" operations. This "lights off" operation pertains only to restricted areas and is not authorized in any other special use airspace. A waiver to FAR 91.209 is unnecessary if the aircraft is operating in a restricted area in compliance with the Using/Scheduling Agency's rules of operation for that area.

7.6. IFR Operations.

7.6.1. Outside the R-2508 Complex, conduct flight operations under IFR to the maximum extent possible without unacceptable mission degradation. Conduct point-to-point flights, round-robin proficiency flights, and test mission aircraft transit between Edwards and test ranges/areas under IFR according to AFI 11-206, as supplemented. Certain flights with external stores may be flown VFR point-to-point to avoid populated areas.

7.6.2. Plan all cross-country and proficiency flights on IFR clearances terminating at Edwards AFB to use a published IFR instrument approach. Multiple approaches will not be provided when test activity is taking place within R-2515 unless flight activity is light to moderate. This does not preclude a pilot from either making a south reentry to the TACAN and making approaches or from requesting practice instrument approaches under the control of SPORT.

7.7. Functional Check Flight (FCF).

7.7.1. Use R-2515 for FCFs. If supersonic flight is required, use the designated Edwards supersonic corridors. FCFs may be flown in R-2515 during periods of light activity and coordinated with SPORT.

7.7.2. Conduct FCFs required for engine removal and replacement or adjustment in single engine aircraft within gliding distance of Edwards until it is determined the engine is operating normally.

7.7.3. Fly FCFs to accomplish applicable sections of the FCF checklist. Whenever possible, operate and check test instrumentation for functional status.

7.7.4. Make engine airstarts only when required by the applicable FCF checklist. The quality assurance inspector indicates the airstart requirement during the preflight briefing.

7.7.5. Do not schedule FCFs in combination with other missions unless authorized by 412 OG/CC or authorized representative. Coordinate all changes with 412th Logistics Group (LG)/LGQF.

7.7.6. Flying units will indicate FCF qualified aircrew on unit qualification summary letter of Xs. Quality Assurance may verify aircrew FCF qualification with unit CC/DO.

7.7.7. All FCF crews of single engine pressurized fighter-type aircraft (F-16, etc.) will breathe 100 percent oxygen during FCFs.

7.8. Altimeter Settings.

7.8.1. Test aircraft may use 29.92 at all altitudes as required by test parameters within R-2515 in VMC. Operations with local altimeter settings outside of R-2515 are as required by the R-2508 complex users handbook.

7.8.2. Use Edwards AFB local altimeter setting for R-2515.

7.8.3. The altimeter settings for R-2508 Work Areas are as follows:

7.8.3.1. Use Edwards AFB local altimeter setting for Isabella, Bakersfield, Barstow and Buckhorn.

7.8.3.2. Use China Lake local altimeter setting for Owens, Saline, Panamint, Shoshone, Porterville (except NAS Lemoore aircraft use Fresno altimeter setting), Bishop (except when Oakland ARTCC has the area, use Bishop altimeter setting).

7.9. RTB.

7.9.1. Timely notification of pilots' intentions to ATC is a very important factor in ATC's ability to provide adequate service.

7.9.2. Pilots returning to R-2515/Edwards from the work areas will advise JOSHUA of intentions about 3 minutes prior to entering R-2515. This allows JOSHUA time to effect a radar/ communications hand-off to SPORT and provides SPORT an opportunity to issue appropriate traffic and advise of R-2515 special use area status and flight activities upon initial contact.

7.9.3. Unless otherwise required, use the following corridors when arriving from R-2515 or the R-2508 Complex (see Inflight Guide). These procedures do not apply to light aircraft or helicopters that have other prescribed routes.

7.9.3.1. Rwy 22. Arrivals from Isabella: Cross R-2515 boundary northeast of California City. From Trona or Panamint, cross west of Hwy 395 and Red Mountain area. All arrivals proceed to the Boron Mines for desired pattern entry.

7.9.3.2. Rwy 4. Arrivals from Isabella: Cross R-2515 boundary between Mojave Airport and California City. Plan traffic pattern entry at the Bend-in-the-Road on Rosamond Blvd.

CAUTION: Be aware of Tower Flyby traffic near housing area. Arrivals from R-2515 should return north of the base remaining south of Desert Butte. Plan approach as above.

7.10. Formation Breakup.

7.10.1. Formation mission leads are required to brief this topic in sufficient detail so as to ensure safe split up of the flights/elements from the test aircraft/flight. Additionally, departed flights/elements will separately brief their breakup to single ship. The key is for all aircrews to understand the breakup plan(s). As a guide, the flight/element lead will not consider the formation split up until the departing element/aircraft has turned to a divergent vector with 6,000 feet horizontal or 1,000 feet vertical separation, and this separation can be maintained.

Chapter 8

PIRA AND ALPHA CORRIDOR

8.1. General.

8.1.1. This section describes the PIRA, Alpha Corridor procedures, and other range operations occurring within these areas. Schedule use of the described areas In Accordance With (IAW) AFFTCI 11-15 through 412 OSS/OSCS.

8.2. Definitions.

8.2.1. Radio Frequency. DOWNFALL and SPORT monitor mission frequencies while aircraft are operating on the range.

8.2.2. Range Classes:

8.2.2.1. Class A. Range is manned, has ground scoring capability, and an RCO on the ground to control aircraft using the range.

8.2.2.2. Class B. Range is either manned or unmanned with ground scoring capability but no RCO on the ground to control aircraft using the range.

8.2.2.3. Class C. Range is unmanned with no scoring or aircraft control capabilities from the ground.

8.2.3. RCO. For Class A range operations, a qualified RCO controls air-to-ground operations. The RCO is the final authority for safe airborne range operations. An RCO is required when the minimum altitude in a diving event is planned to be below 300'.

8.2.4. Range Safety Officer (RSO). The supervisor or acting supervisor of the PIRA physically located in the range control tower during operations. The RSO is an advisor to the RCO, and interfaces between the RCO and range personnel.

8.2.5. SPORT. Controls airborne access into the PIRA, Alpha Corridor, Spin Areas and other SUAs within R-2515. SPORT uses instrumentation and surveillance radars to provide precise positioning, airspace surveillance, traffic advisories, and boundary calls to all mission aircraft within R-2515.

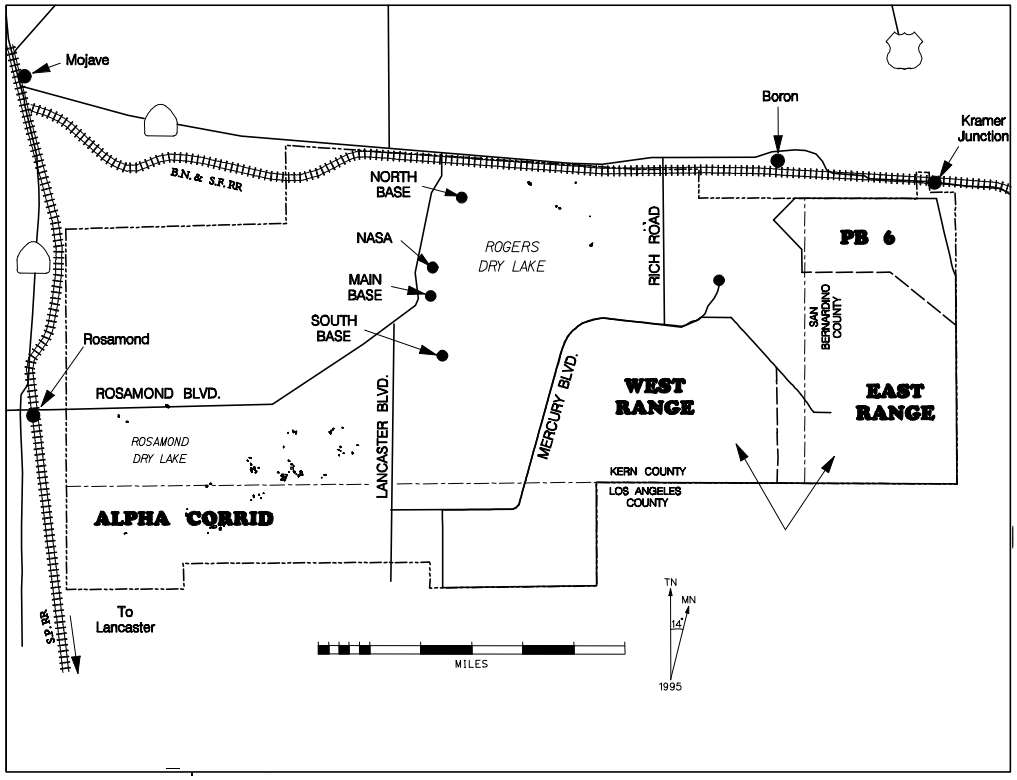
8.3. Alpha Corridor. (Fig 8-1)

8.3.1. A west to east air corridor into the west range. It begins at the SW corner of the Edwards AFB reservation and extends east to the western boundary of the PIRA. The northern boundary runs across the north side of the settling ponds and intersects Mercury Blvd. near where the road turns east. SPORT provides advisories stating whether it is hot or cold. Treat the Alpha Corridor as hot until confirmed otherwise. The boundary coordinates are:

34½45’41”N	118½08’23”W
34½49’41”N	118½08’23”W
34½50’15”N	117½58’00”W
34½53’18”N	117½48’12”W
34½48’15”N	117½49’45”W
34½48’15”N	117½53’00”W

8.4. PIRA. (Fig 8-1)

Figure 8.1. Alpha Corridor, PIRA West/East Ranges, and PB6 Target Area.



8.4.1. Located on the southeast and eastern portions of the Edwards Air Force Base (AFB) reservation. It is set up to conduct air-to-ground gunnery, precision bombing tests, photo resolution, spin testing, aerial decelerator tests, and other tests requiring precision instrumentation. The PIRA is subdivided into two (2) ranges, West Range and East Range. Schedule each range individually or in conjunction with the other, depending on mission requirements. Conduct concurrent operations in these ranges under SPORT control.

8.4.2. West Range. A conventional Class A or Class B, dual air-to-ground gun/bomb and limited rocket range with associated airspace. The West Range is the main instrument range of the PIRA. The range contains seven (7) precision bombing (PB) circles, a saturation bombing target (Barbell Target), and the Dual Air-to-Ground Range (DAGRAG). Two (2) of the bombing circles (PB-1 and PB-10)

have scoring instrumentation. Boundaries of the West Range begin at the Mercury Blvd./Ave. B intersection; north (N) on a line paralleling Mercury Blvd., then east (E) following Mercury Blvd. to the intersection of Rocket Site Road. East to Mars Blvd., connecting Leuhman Ridge and Haystack Butte. Southeast (SE) paralleling Mars Blvd. to 34½53'18"N, 117½38'55"W. South (S) to 34s20 ½49'20"N, 117½38'55"W, then west along the south reservation boundary (Ave. A) to 300th St. E. South along 300th St. E to Ave. E; west to 140th St E. North to Avenue B; then east to beginning.

8.4.3. East Range. A conventional single, Class B, air-to-ground gunnery, bombing, and limited rocket range with associated airspace. The East Range has four (4) precision bomb circles (PB-5, PB-6, PB-11, and PB-12) and a single air-to-ground gunnery/rocket range. PB-12 has video bomb scoring and is the only target available for bombs. Otherwise, the range has no instrument scoring capability limited to triangulation by use of transits. The gunnery/rocket range has a single left-hand pattern for strafing/bombing with five (5) strafe targets and a bomb circle. The range has expansion capability for three (3) patterns and 30 strafe targets. PB-6 is part of the East Range. East Range Boundary coordinates are:

34½49'17"N	117½31'30"W
34½49'21"N	117½38'56"W
34½53'13"N	117½38'56"W
34½51'45"N	117½37'28"W
34½51'45"N	117½36'42"W
34½53'45"N	117½36'42"W
34½53'45"N	117½37'53"W
34½57'17"N	117½37'53"W
34½58'17"N	117½39'05"W
34½59'00"N	117½38'12"W
34½58'58"N	117½32'26"W
34½56'08"N	117½31'30"W

thence to point of beginning

Note: Coordinates for the Precision Bombing Targets are in Attachment 7.

8.5. Alpha Corridor And PIRA Procedures.

8.5.1. Schedule according to AFFTCI 11-15 for missions requiring Alpha Corridor or PIRA airspace.

8.5.2. Simultaneous mission operations:

8.5.2.1. After preliminary agreement to conduct simultaneous operations between missions/test squadrons, lead pilots commence final coordination to de-conflict their respective operation. Pilots should exchange significant details of each operation to remove all conflicts. Avoid placing the burden of de-conflicting on only one operation. Do not require visual separation from a DZ at extreme altitude or when restrictions to flight visibility exists.

8.5.2.2. If both pilots reach agreement to conduct simultaneous operations, they both telephone the SPORT supervisor (73928, 73931), brief their respective mission, and advise each has coordinated with the other and agreed to simultaneous operations. The Survival School DZ, Farm DZ, and Rosamond DZ are in the Alpha Corridor. PIRA missions and jump operations in the Alpha Corridor may normally operate concurrently under SPORT control. When simultaneous operations involve jump missions, advise SPORT of specific flight paths, altitudes, and expected proximity to a DZ.

8.5.2.3. Lead pilots of conflicting missions will contact SPORT enroute to Last Chance or prior to takeoff. Brief any mission changes, advise SPORT of coordination with other pilot and agreement to conduct simultaneous operations.

Note: SPORT shall be the final authority for simultaneous or continued simultaneous operations.

8.5.3. The Test Director (TD) or Test Conductor (TC) must determine if minimum altitudes requires a Class A or Class B range for the planned operation.

8.5.4. Missions requiring the Alpha Corridor, the PIRA in conjunction with the Alpha Corridor, or use of any PIRA ranges under SPORT control will:

8.5.4.1. Provide 412 TW/TSROC (ext. 72726, 76188) pre-mission planning and briefing information.

8.5.4.2. When it is planned to drop, fire, or shoot an object onto the PIRA, and regardless of the intent to use instrumentation radar or other range assets, the TD/TC or RCO assisting the test mission will provide SPORT (ext. 73928, 73931) the following information, as applicable, no later than 1 hour prior to expected departure time:

8.5.4.2.1. Ordnance:

8.5.4.2.1.1. Type/quantity of weapons/devices to be released/fired/jettisoned.

8.5.4.2.1.2. Size and weight.

8.5.4.2.1.3. Drag (high/low).

8.5.4.2.1.4. Time of fall, trail distance, etc.

8.5.4.2.1.5. Tank, full/empty.

8.5.4.2.1.6. Inert.

8.5.4.2.2. Parameters.

8.5.4.2.2.1. True Air Speed (TAS).

8.5.4.2.2.2. Altitude (MSL).

8.5.4.2.2.3. Type of release (single, ripple, salvo, automatic, manual).

8.5.4.2.2.4. Aircraft maneuver (dive, level, dive toss, turn).

8.5.4.2.2.5. Aircraft heading.

8.5.4.2.3. Area.

8.5.4.2.3.1. Range (West, East, Alpha).

8.5.4.2.3.2. Target, DAGRAG, or PB number.

Note: Changes to planned activities must be forwarded to SPORT as soon as they are known in order to ensure successful coordination.

8.5.5. Pilot procedures:

8.5.5.1. Prior to departure contact SPORT on mission frequency or 272.0 to confirm range schedule and provide SPORT with ordnance release parameters.

8.5.5.2. Coordinate entry point for the Alpha Corridor or PIRA with SPORT. Avoid flying between 2500' to 3500' MSL crossing Rosamond Blvd north of Rosamond Dry Lake.

8.5.5.3. Receive PIRA/Alpha Corridor clearance from SPORT on mission frequency or 272.0 prior to entry.

8.5.5.4. Enter East Range on the downwind leg of the pattern. Stay north of the West Range.

8.5.5.5. Enter PB-6 from the north or west, remain north of Det 7, AFRL if possible.

Note: Remain at or above 5300’ MSL when overflying the Det 7, AFRL and the X-33 Operations Area.

8.5.5.6. Confirm the following with SPORT before first run:

8.5.5.6.1. Type and quantity of weapons to release/fire and whether ordnance is live/inert/ training.

8.5.5.6.2. Intended speed at release/fire point.

8.5.5.6.3. Intended altitude at release/fire point.

8.5.5.6.4. Aircraft maneuver (level, dive, turn, etc.).

8.5.5.6.5. Target.

8.5.5.7. Adhere to and acknowledge position advisories.

8.5.6. Arming procedures:

8.5.6.1. Test mission pilots will not select Master Arm Enable without specific clearance from SPORT/RCO/RSO.

Note: The phrase “Cleared to Arm” in this and subsequent paragraphs is used to denote whatever process or procedure is used to unlock weapons preparatory to weapons release.

8.5.6.2. SPORT/RCO/RSO will not authorize a test mission to arm weapon(s) without assurance that:

8.5.6.2.1. The aircraft has crossed into range airspace, or

8.5.6.2.2. The device to be deployed (guns, rockets, gravity bombs, or other devices) would impact within the PIRA if an inadvertent release would occur at the moment of arming, or

8.5.6.2.3. If Mercury Blvd. has been closed and an inadvertent release occurs, the device being deployed would impact safely on Rogers dry lakebed and within the confines of the Alpha Corridor or PIRA boundaries.

Note: If SPORT is using ATC radar data to obtain position correlation information on the test aircraft, the following supplemental guidance is mandated:

8.5.6.3. SPORT will not issue a clearance to arm when using ATC radar display when:

8.5.6.3.1. Position/identity of test aircraft is uncertain or questionable.

8.5.6.3.2. The controller is dissatisfied with the radar display.

8.5.6.4. Ensure all armament switches are safe until receiving “Cleared to arm.” Do not arm until:

8.5.6.4.1. On west to east runs into West Range, after crossing Mercury Blvd. If Mercury Blvd. has been closed, after crossing Lancaster Blvd.

Note: Safety Review Board (SRB) may impose more stringent requirements.

8.5.6.4.2. On east to west runs into West Range, after crossing Hwy. 395.

8.5.6.4.3. On south to north runs on East Range, on the range south of Haystack Butte.

8.5.6.4.4. On north to south runs into the East Range, after crossing Hwy. 58.

8.5.6.5. Abort a hot run any time circumstances warrant. When the command "Abort, Abort" is initiated, acknowledge and confirm all arming switches are safe.

8.5.6.6. Notify SPORT of any suspected malfunction/anomaly of ordnance.

Note: Supersonic approaches to PIRA below 15,000 feet MSL are restricted to Alpha Corridor (west to east) only.

8.5.6.7. Separations by onboard radar or other methods of automatic delivery are authorized.

8.5.6.8. When an instrumentation radar is to be used:

8.5.6.8.1. SPORT controls a test aircraft controlled release/separation/jettison/fire as follows: The aircraft provides SPORT with computed time to release during run-in. If this time agrees with SPORT computations, SPORT acknowledges the time-to-go calls and issues a Cleared to Arm and Release/Fire at a predetermined point.

8.5.6.8.2. SPORT controls non-automatic release/fire Dry Run (release/fire point determined by SPORT impact point calculations) by directing the aircraft to the release point and providing the aircrew with the following calls:

8.5.6.8.2.1. Two (2) minutes.

8.5.6.8.2.2. One (1) minute.

8.5.6.8.2.3. 30 seconds.

8.5.6.8.2.4. Simulate/Cleared to Arm.

8.5.6.8.2.5. 10 seconds.

8.5.6.8.2.6. five (5), four (4), three (3), two (2), one (1), Release/Fire.

Note: All first runs will be dry unless pre-coordinated with SPORT. The pilot or mission director will determine HOT or DRY status before beginning each new run.

8.5.7. SPORT:

8.5.7.1. Briefs DOWNFALL on all range operations and any pending supersonic flights in the Alpha Corridor to include number of runs and time frame.

8.5.7.2. Provides a qualified SPORT controller to direct or monitor all PIRA missions.

8.5.7.3. Confirms the following from the pilot before first run:

8.5.7.3.1. Type and quantity of weapons to be released/fired.

8.5.7.3.2. Intended speed at release/fire point.

8.5.7.3.3. Intended altitude at release/fire point.

8.5.7.3.4. Aircraft maneuver (level, dive turn, etc.).

8.5.7.3.5. Target to be used.

8.5.7.4. Controls a test aircraft controlled release/ separation/jettison/fire when an instrumentation radar is used, as follows:

8.5.7.4.1. The aircraft provides SPORT with computed time to release during run-in for the first dry pass if timing is available.

8.5.7.4.2. If computed time agrees with SPORT computations, SPORT acknowledges subsequent time to go calls and issues a "Cleared to Arm" and a "Cleared to Release/Fire" at a point predetermined by SPORT to be safe and consistent with briefed forward range of the device being deployed. When briefed weapon ranges differ significantly from those obtained by SPORT, the project will be asked to verify values provided and conditions of release.

Note: The value providing the more significant safety margin will be used to determine the release point for the device and other considerations; e.g. the placement of people and equipment on the range/ target, and if any movement of people/equipment may be allowed between other range positions. SPORT will compute/verify downrange distances for all dropped or fired devices on the PIRA.

8.5.7.5. Controls a ground directed release/fire, when utilizing an instrumentation radar, by vectoring the aircraft to the release point and providing the aircrew with the following information:

Note: An instrumentation radar will be required to allow SPORT to compute time to drop calls. There is no attempt here to prevent the pilot from aligning the test aircraft for the hot pass, provided this can be done within the assigned and authorized airspace.

8.5.7.5.1. Two (2) minutes (times are calculated from release point).

8.5.7.5.2. One (1) minute.

8.5.7.5.3. 30 seconds.

8.5.7.5.4. 10 seconds.

8.5.7.5.5. five (5), four (4), three (3), two (2), one (1) Cleared to Release/Fire.

Note: Cleared to arm/release/fire commands are issued at the appropriate time in the sequence.

8.5.7.6. May modify procedures for steep dive releases (35½ or greater) as follows:

8.5.7.6.1. Test director or mission pilot defines roll-in point

8.5.7.6.2. Gives countdown to roll-in point.

8.5.7.7. After roll-in, when footprint lies within the desired area, SPORT transmits, "Cleared to arm and release."

8.5.7.8. Pilot initiates release within defined test conditions.

Note: When an instrumentation radar is not assigned or when it has become unusable as a reference for aircraft position, SPORT will be unable to provide time to go calls for a test mission.

Note: All first runs will be "DRY" unless pre-coordinated with SPORT. The pilot or mission director will determine HOT or DRY status before beginning each new run.

8.5.7.9. Aborts a hot run any time circumstances warrant. To abort a hot run, SPORT will transmit the command, "Abort, Abort, Abort."

8.5.7.10. Confirms weapons' switches are "Off/Safe" after release/fire has been accomplished or attempted.

Note: When an air-to-ground tone correlation is used in conjunction with the release of a device, it should not be transmitted on the frequency being used for air traffic control instructions. If possible a second frequency will be scheduled to record the tone. A nominal period of five seconds is established for tone correlation.

8.5.7.11. Verifies the PIRA is clear prior to conducting a device separation or active laser operations.

8.5.7.12. Notifies tower and DOWNFALL of mission termination.

8.5.7.13. Provides traffic advisories and boundary calls as required.

8.5.7.14. Terminates range activity when range safety is in question. No restrictions are implied for maneuvers which are associated with simulated evasive action on the part of the pilot, nor when unusual maneuvers are required to satisfy test objective.

8.5.8. Emergency Procedures:

8.5.8.1. Loss of Communications. If radio contact is lost between the aircraft and SPORT/ DAGRAG Control up to and including the countdown to release/fire, abort the run.

8.5.8.1.1. Attempt contact on 272.0. If unable, contact tower and RTB. DO NOT use the range without clearance.

8.5.8.1.2. SPORT immediately notifies tower.

8.5.8.2. For hung ordnance:

8.5.8.2.1. Notify SPORT.

8.5.8.2.2. Remain with SPORT and follow SPORT instructions to attempt jettison on the PIRA.

8.5.8.2.3. When jettison is not accomplished, notify SPORT. Request assistance for a straight-in approach. Contact tower, and execute hung ordnance procedures (Chapter 14).

8.5.8.3. Runaway Guns:

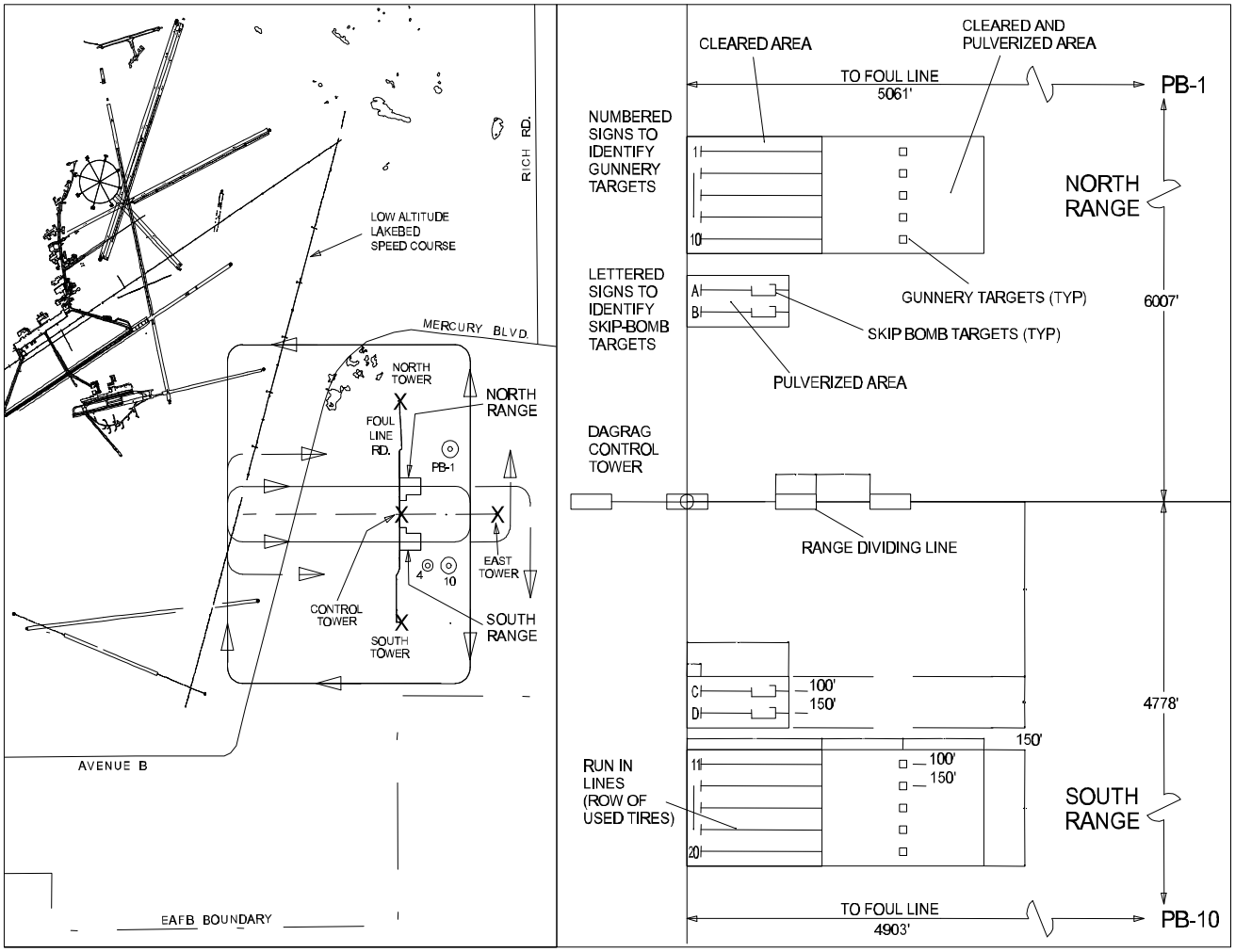
8.5.8.3.1. Aircraft with forward firing guns will continue to direct fire into the targets as long as possible, after which direct fire toward an uninhabited area. Preferably to a point about one (1) NM south of Haystack Butte if on DAGRAG or West Range.

8.5.8.3.2. Aircraft with rear firing guns will continue to direct fire into target area.

8.5.8.3.3. Aircraft with guns firing from the side of the aircraft and flying a course parallel to Foul Line Road, will circle the target area while continuing to direct fire into the target area.

8.6. DAGRAG. (Fig 8-2)

Figure 8.2. DAGRAG.



8.6.1. A conventional low altitude, Class B air-to-ground gunnery, bombing and limited rocket range with associated airspace.

8.6.2. DAGRAG Patterns. DAGRAG has a North Range (right- hand traffic) and a South Range (left-hand traffic). Each range has one (1) bomb/rocket circle, 10 strafe targets, two (2) skip bomb targets, two (2) flank observation towers, one (1) flank instrumentation tower, and one (1) common range control tower. Conventional three (3) by four (4) NM flight patterns (Fig 8-3) exist for the ranges. The patterns are limited to Mercury Blvd. to the north, Avenue A to the south, and a west base leg about one (1) NM east of the north/south lakebed runway. Normally, the eastern crosswind legs of the flight patterns are one (1) NM beyond the target for a single aircraft on the range. When two (2) or

more aircraft are in the pattern, each adjusts the eastern crosswind leg to maintain adequate separation. Except for flight safety, there is no minimum altitude restriction on the north range pattern. Restrict the south range pattern to a base leg minimum altitude of 4,800' MSL until passing the extension to South Base Rwy 24 (Fig 8-4). The vertical airspace extends up to 14,000' MSL.

Figure 8.3. DAGRAG Flight Patterns.

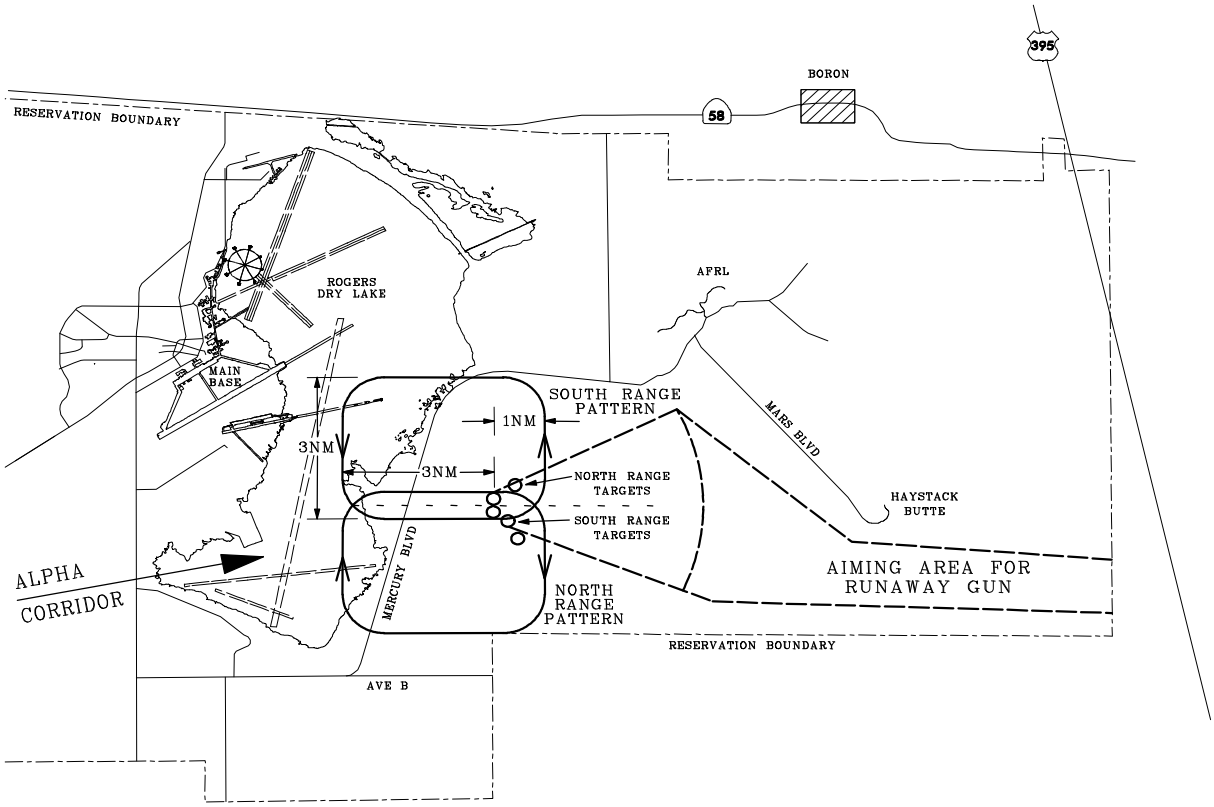
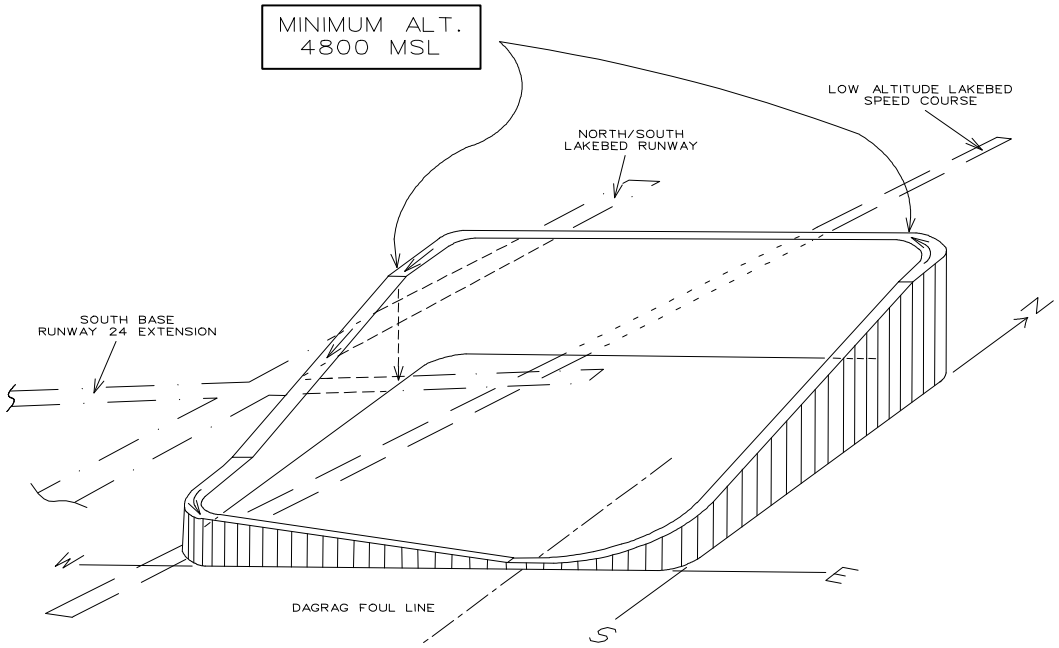


Figure 8.4. Altitude Restrictions on South Range Traffic Pattern.



8.6.3. Specific procedures.

8.6.3.1. Ensure minimum recovery altitudes are as in Table 14-1. Lower minimum recovery altitudes must be included in the test plan approved by the Test Safety Review process.

8.6.3.2. For Class A range operations, pre-brief the RCO on the mission including ordnance and types of delivery, minimum altitudes, type patterns, and foul criteria. Review all pattern communication procedures. See Table 14-1 for minimum altitudes and RCO requirements. See AFFTCI 11-2 for RCO duties.

8.6.3.3. Contact SPORT on mission frequency or 272.0 for range clearance. Hold as directed by SPORT while awaiting clearance.

8.6.3.4. After receiving range clearance, contact DAGRAG Control on assigned frequency. DAGRAG Control/RCO assumes control of the mission in the DAGRAG pattern. Provide the following:

8.6.3.4.1. Aircraft type and serial number.

8.6.3.4.2. Estimated number of sorties/passes.

8.6.3.4.3. Type/quantity of ordnance to be expended.

8.6.3.5. Fly a minimum of one dry pass on each target complex to be used (i.e. PB-10, strafe, PB-1, etc.).

8.6.3.6. Obtain DAGRAG Control clearance for each sortie/pass. During Class A range operations, armament and firing clearances are provided by the RCO.

8.6.3.7. Comply with mandatory radio calls in the DAGRAG pattern as follows:

8.6.3.7.1. Immediately before rolling in on final: "(call sign), In Hot/Cold." Do not place armament master switches on until after roll-out on final and clearance is received from DAGRAG Control/RCO. Place switches on SAFE as soon as practicable after pullout.

8.6.3.7.2. After release/pullout “SAFE” armament master switch and call: "(call sign), Off, Switches Safe."

8.6.4. Follow SPORT position advisories, if applicable.

8.6.5. Be responsible for maintaining separation from other aircraft while flying DAGRAG missions.

Note: When more than one (1) aircraft are in the same DAGRAG pattern, each pilot adjusts position in the pattern to maintain proper spacing. Extend the pattern as far east as the East Range boundary, or as far as required within the PIRA to maintain separation when the East Range is not in use.

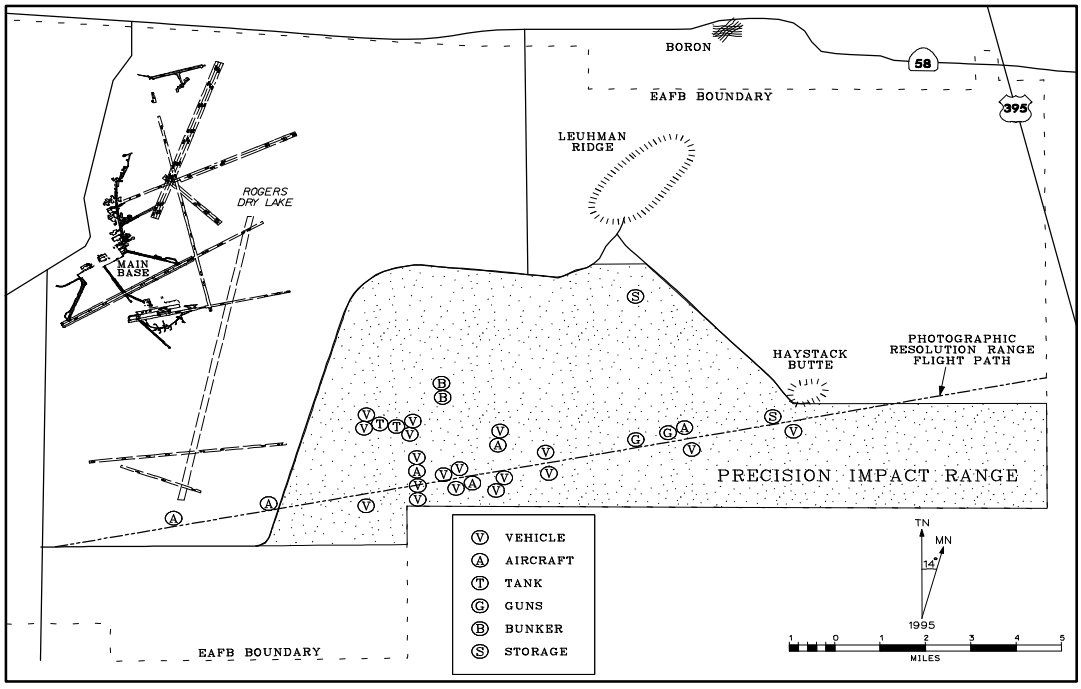
Note: To minimize range use time and to provide time between each sortie for weapon scoring, DAGRAG may request the pilot to extend the pattern three (3) miles east of Foul Line Road before turning crosswind. This minimizes the potential ricochet hazard and ensures when one aircraft is turning final, the second aircraft is turning downwind. Further, both aircraft will intercept Foul Line Road simultaneously.

8.6.6. Notify DAGRAG and SPORT of suspected malfunction/anomaly of ordnance.

8.6.7. Inform DAGRAG and SPORT of mission completion.

8.7. Photo And Infrared Tactical And Resolution Ranges.

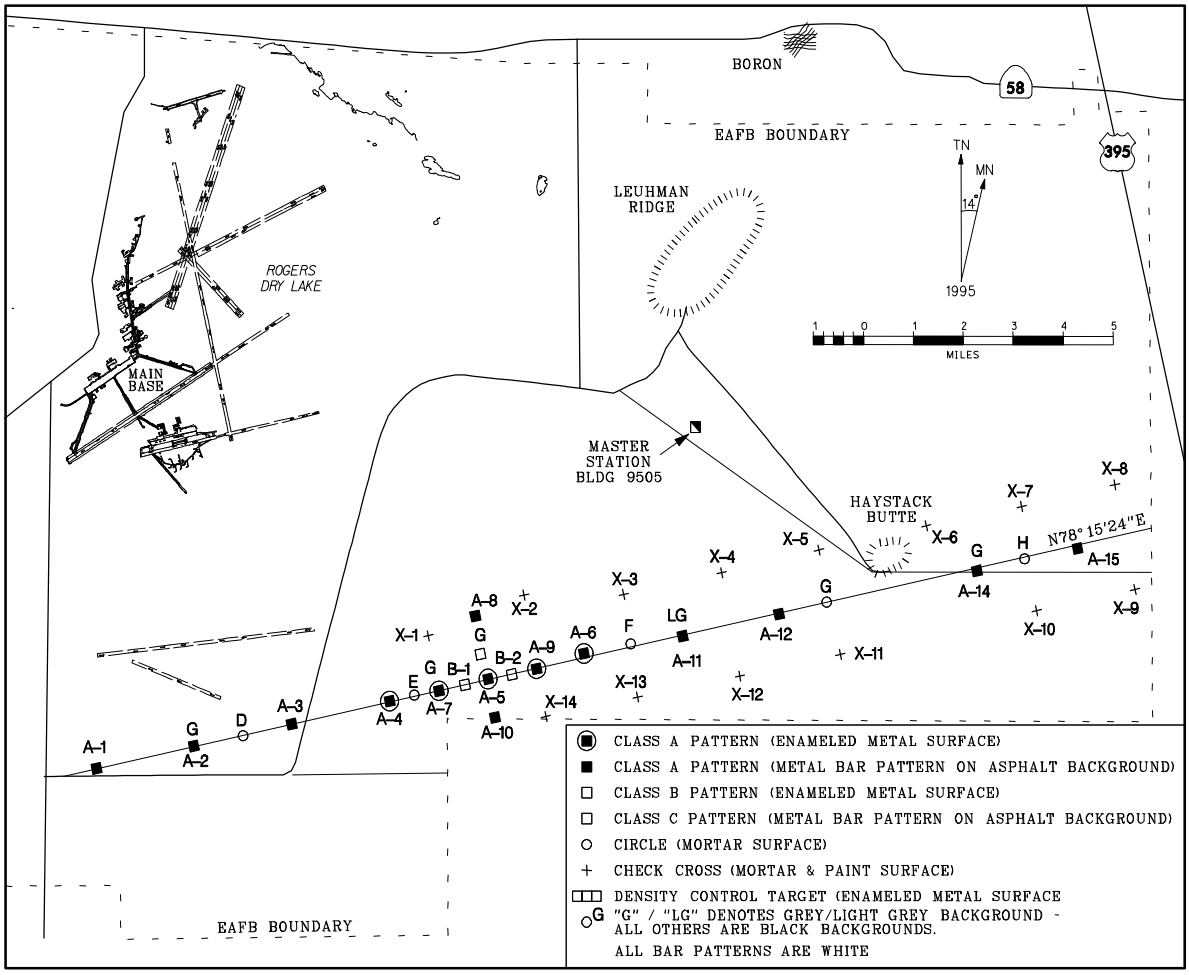
Figure 8.5. Photo and Infrared Tactical Ranges.



8.7.1. The Photo and Infrared Tactical Range (Fig 8-5) is located in the Alpha Corridor and PIRA. This range consists of a variety of targets at sited locations along the resolution range and the PB-7 Strip Range.

8.7.2. The Photo and Infrared Resolution Range (Fig 8-6) is in the SE part of Edwards. The range covers an area two (2) NM wide and 21 NM long with 18 bar-type resolution targets, one (1) tridensity target, five (5) circle targets, one (1) oblique target, and 14 check-cross patterns. Photo resolution patterns are MIL-STD-150.

Figure 8.6. Photo and Infrared Resolution Range.

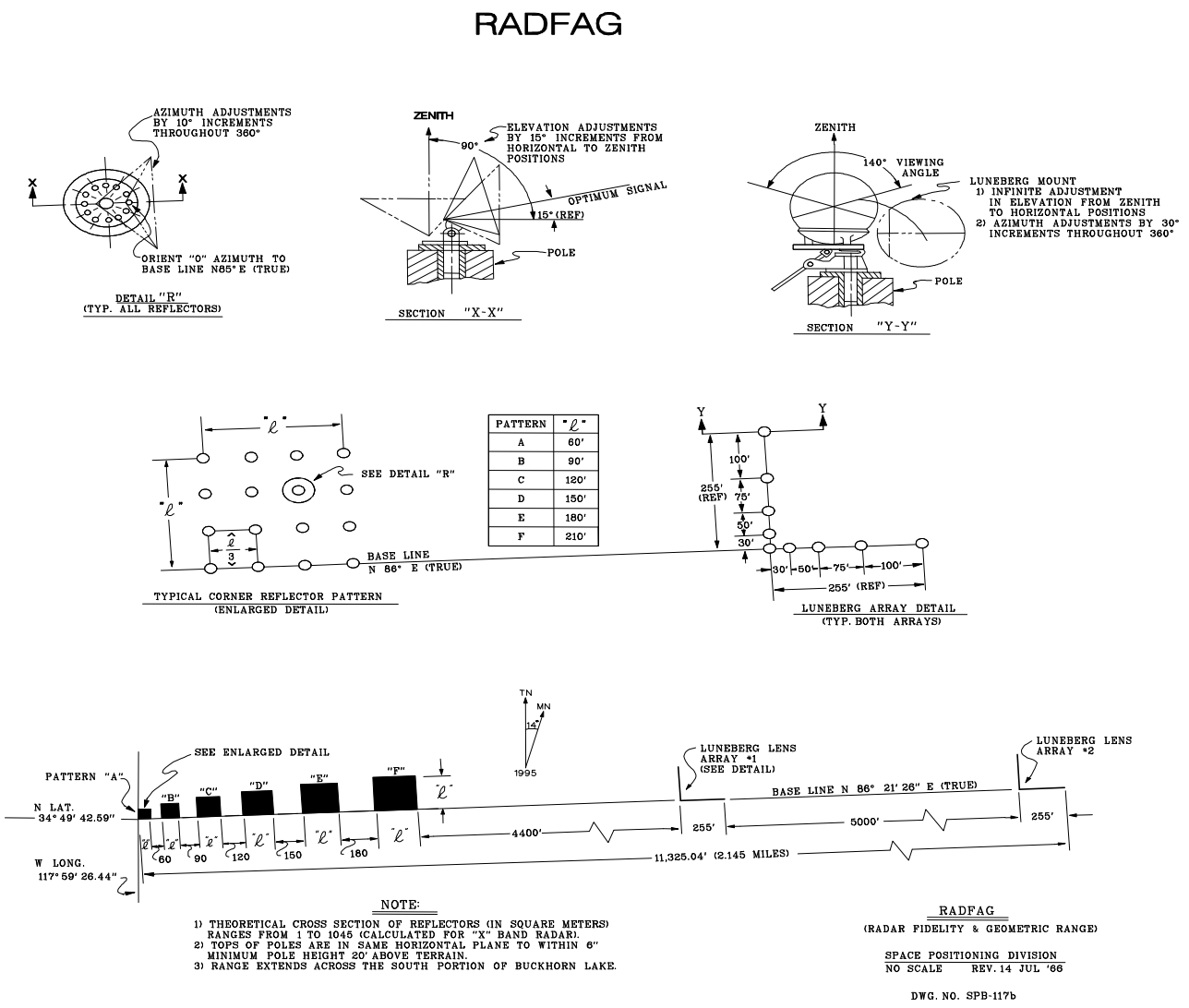


8.7.3. Contact SPORT on assigned mission frequency or 272.0 to confirm range time and entry clearance. Hold as SPORT instructs and advise when mission is complete.

8.7.4. When SPORT is closed, contact tower before entry. Maintain contact with tower and advise when mission is complete.

8.8. Radar Fidelity And Geometric (Radfag) Ranges. (Fig 8-7)

Figure 8.7. Radar Fidelity and Geometric Range (RADFAG).



8.8.1. The South RADFAG is on Buckhorn Lake, six (6) NM SW of the Main Base runway. The range has six (6) square arrays with 16 reflectors each and six (6) L-shaped arrays with nine (9) reflectors each. A wide assortment of corner reflectors and Luneberg lenses are available to simulate a tactical situation or satisfy a wide variety of forward or side-looking airborne radar tests. Cross-sectional areas of reflectors vary from one to 1,045 square meters. All cross-sectional targets are used against X-band radars.

8.8.2. The North RADFAG is a passive radar reflector array with 80 trihedral corner reflectors in a 6,000 sq. ft area. Mounted in the array center, surveyed to 1st order, and tied to the Contraves cinetheodolite survey network, is an omnidirectional quadtrihedral reflector used to navigate on the array. The array is in the Northwest (NW) corner of Edwards. The orientation dictated by the terrain

topography, accommodates the longest approach to the array at low altitudes. A microwave tower (six point eight (6.8) NM from the array center on a true bearing of 34.5o) is the array's visual azimuth orientation and is a visual initial point for the array user. Its approximate coordinates are 35½02'20"N, 11800'15"W, elevation 2837' MSL.

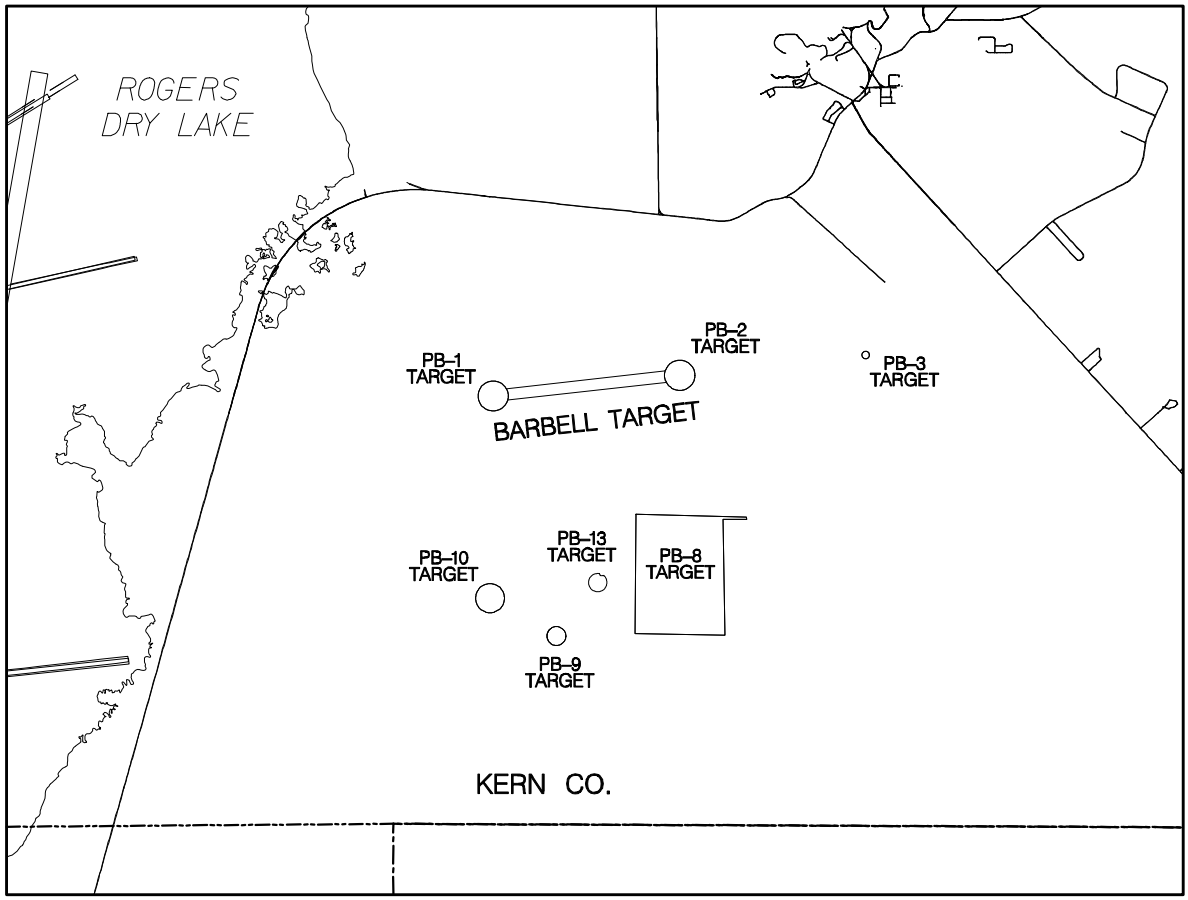
8.8.3. Contact SPORT prior to entry. Obtain Alpha Corridor clearance if using South RADFAG.

8.8.4. Maintain communications with SPORT.

8.8.5. Advise SPORT when mission is complete.

8.9. Barbell Target. (Fig 8-8)

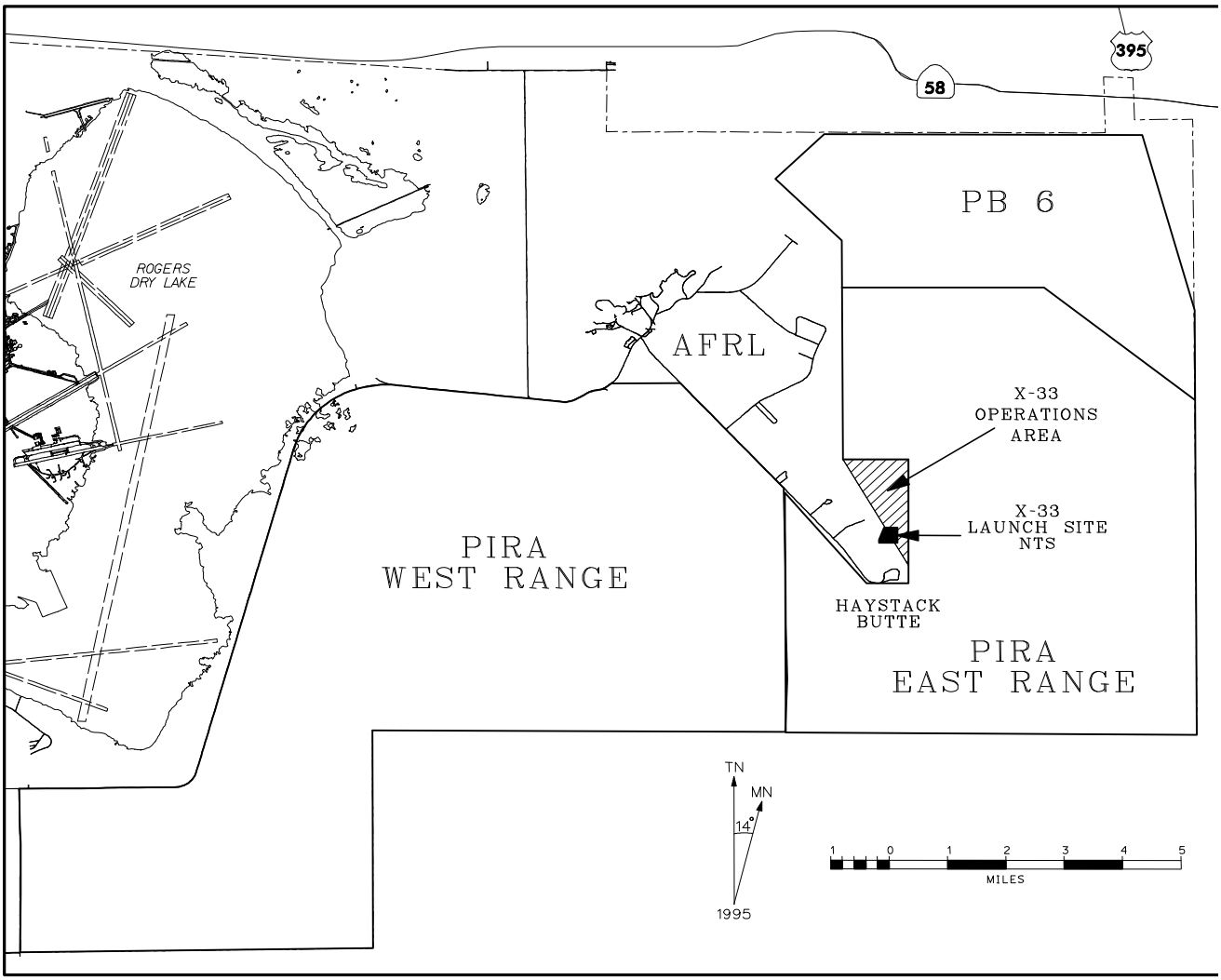
Figure 8.8. Barbell Target.



8.9.1. Located between PB-1 and PB-2, this saturation bombing target will be used for missions requiring multiple weapons releases. This area extends from the centers of the two precision bombing circles (1.8 NM) and outward three hundred feet either side of centerline. Centerline coordinates are 34×53'09.49930"N, 117×45'23.21434"W and 34×53'20.22580"N, 117×43'24.61719"W World Geodetic Survey (WGS-84).

8.10. X-33 Operations Area. (Fig 8-9)

Figure 8.9. X-33 Operations Area.



8.10.1. The X-33 Operations Area is defined as beginning at 34× 53’ 44.9274”N , 117× 37’ 56.2115”W, to 34× 53’ 44.7062”N, 117× 36’ 44.7278”W, to 34× 52’ 01.9315”W, to 34×, 52’ 01.9315”N 117× 36’ 45.2086’W to the point of beginning. These coordinates are WGS-84.

8.10.2. The 5,300’ MSL overflight restriction imposed on the Det 7 AFRL is extended to cover this area.

Chapter 9

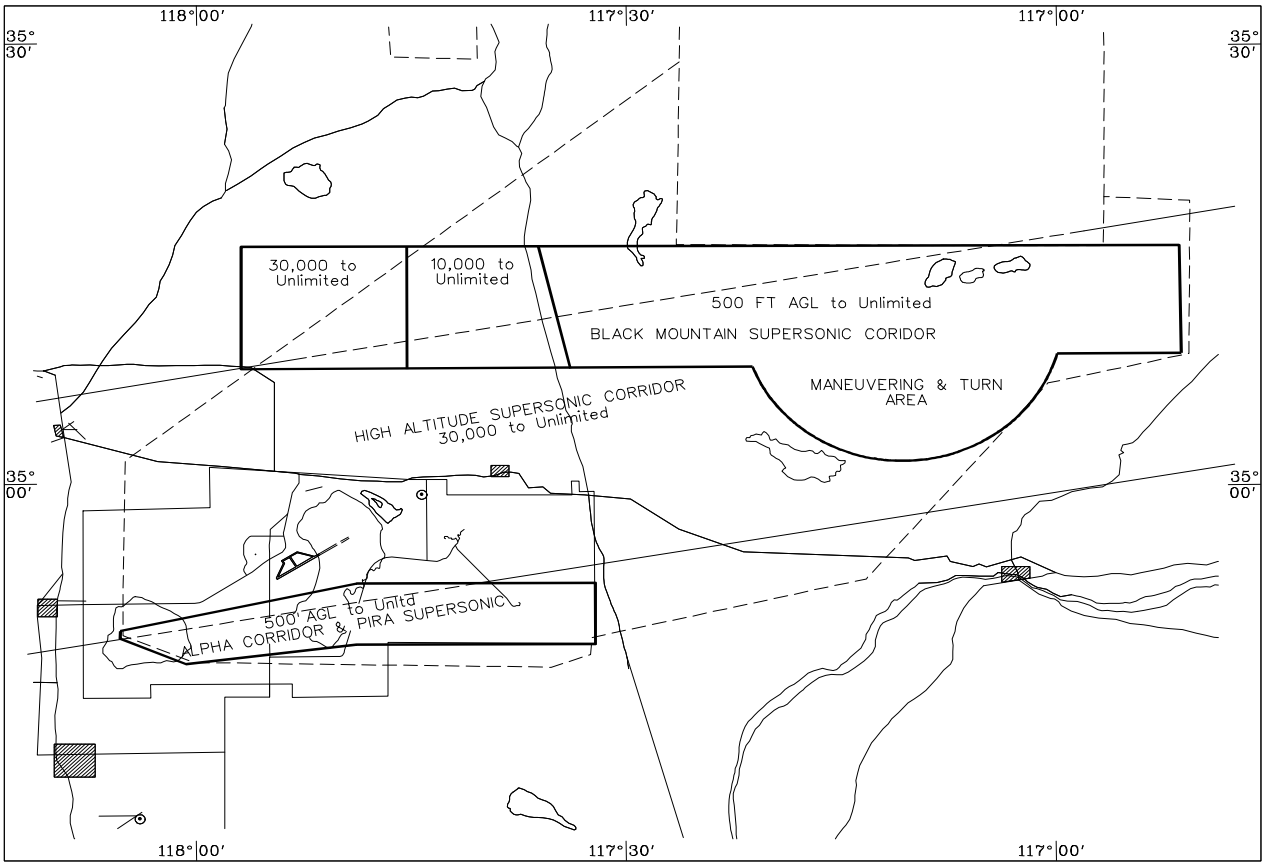
SUPERSONIC OPERATIONS

9.1. Supersonic Operations.

9.1.1. Conduct supersonic operations only in designated supersonic areas as defined in this regulation. Pilots not conducting supersonic operations shall avoid supersonic areas at altitudes SPORT/JOSHUA call hot. Coordinate supersonic flight test profiles designed for specific mission requirements which cannot be accommodated within designated supersonic areas with 412 OG/CC for individual approval. JOSHUA will only provide assistance to the High Altitude Supersonic Corridor.

9.2. Black Mountain Supersonic Corridor. (Fig 9.1.)

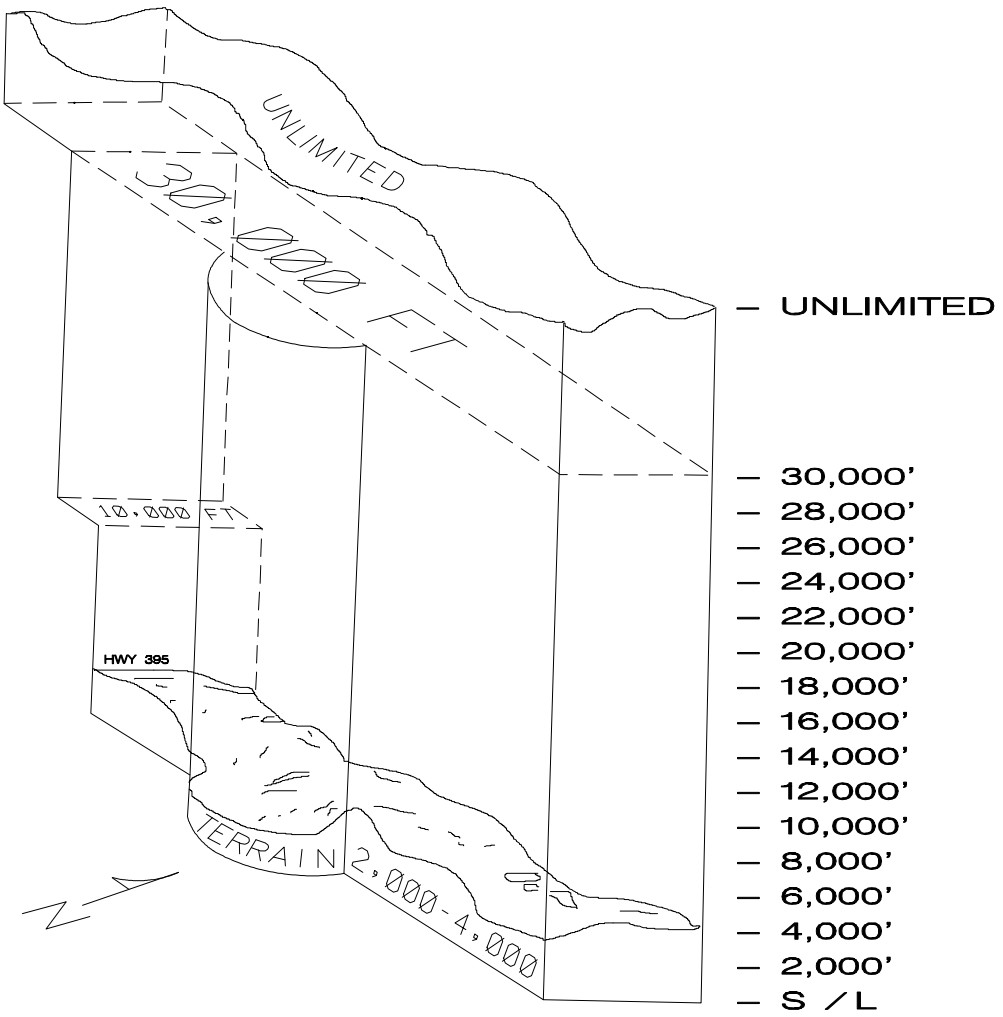
Figure 9.1. Supersonic Areas Below 30,000' MSL.



9.2.1. Black Mountain is an elongated test area eight (8) NM wide extending to 500' AGL, located generally across the northern section of R-2515. There is no upper altitude limit to this corridor. Contact SPORT prior to using this airspace. Border coordinates are from 35½08'N to 35½16'N and from 116½49'W on the east end to US Hwy 395 below 10,000' MSL, to 117½45'W between 10,000' and FL300, and to 117½57'W above FL300. (Fig 9-2). There is a small circular extension, nine and a half (9.5) NM radius centered at 35½11'N, 117½09'W, of the southern boundary immediately NE of

Harpers Lake for supersonic turns or maneuvers. The extreme southern limit of this protrusion is 35½02'N.

Figure 9.2. Altitude Structure of Black Mountain Supersonic Corridor.



9.2.2. Minimum mission altitude is 500' AGL with supersonic flight below 10,000' MSL only between US Hwy 395 and the eastern boundary of R-2515. Dive missions are west to east only.

9.2.3. Obtain clearance from SPORT before entry. Specify altitudes, direction of flight, number of runs and intended maneuvers.

9.2.4. Advise SPORT when mission is complete.

9.2.5. For a dive operation, inform SPORT when dive begins and ends.

9.2.6. SPORT makes the following broadcast on all frequencies (when required): "ATTENTION ALL AIRCRAFT. BLACK MOUNTAIN SUPERSONIC CORRIDOR IS (HOT/COLD) (altitudes)."

9.3. ALPHA CORRIDOR AND PIRA SUPERSONIC AREA (Fig 9-1).

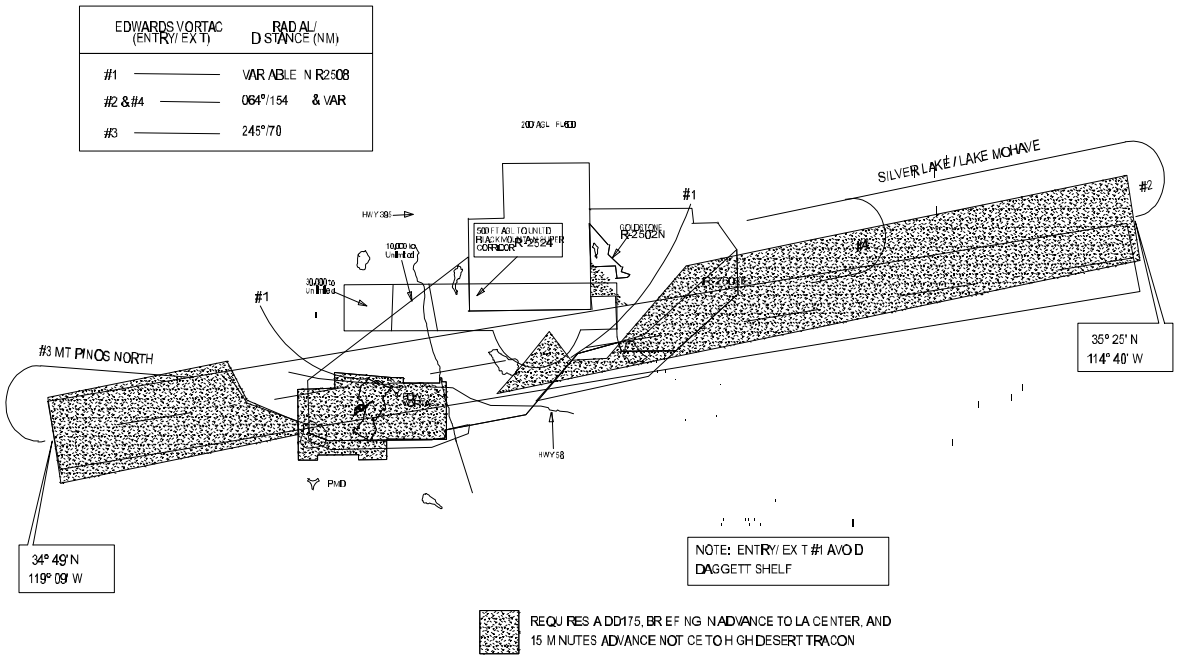
9.3.1. An elongated area across the southern portion of the reservation, approximately four (4) NM wide, extending to 500' AGL. There is no upper altitude limit. Centerline coordinates for supersonic operations are from 34½49'N, 118½03.5'W to 34½51.5'N, 117½31.5'W. Border coordinates are:

34½50'10"N	118½05'45"W
34½53'16"N	117½48'44"W
34½53'16"N	117½31'30"W
34½49'16"N	117½31'30"W
34½49'16"N	117½48'44"W
34½48'00"N	118½01'00"W
34½49'40"N	118½05'45"W

9.3.2. Supersonic flight will be contained within R-2515. Low altitude west to east flights, schedule VFR Military Training Route (VR)-1206 for subsonic acceleration. Supersonic flight below 15,000' MSL is restricted west to east only.

9.4. High Altitude Supersonic Corridor (Fig 9-3).

Figure 9.3. High Altitude Supersonic Corridor.



9.4.1. This corridor is 15 NM wide and 224 NM long from FL300 to unlimited. The centerline between Lake Mojave on the Colorado River (35½25'N, 114½40'W) to Mt Pinos (34½49'N, 119½09'W) located west of Edwards is generally aligned on the EDW 064/244 radial. Border coordinates are:

34½56'21"N	119½10'46"W
35½32'23"N	114½41'16"W
35½17'39"N	114½38'50"W
34½41'40"N	119½07'29"W

9.4.2. High Altitude Entry/Exits (R/Distance Measuring Equipment (DME) on Fig 9-3). Conduct all corridor entries and exits at or above FL300.

9.4.2.1. Entry/Exit Point One (1) (East-West, West-East). Use this entry/exit on runs totally contained within R-2508. Request overflight clearance for R-2502N and R-2524 from Joshua or SPORT.

9.4.2.2. Entry/Exit Point Two (2) (Silver Lake-Lake Mojave). Route directly between Silver Lake and Lake Mojave (EDW 064/154) to include a turning radius to and from the east end of the supersonic corridor.

9.4.2.3. Entry/Exit Point Three (3) (Mt Pinos-North). Via EDW 260o (EDW 244/70) R to a point directly north of Mt Pinos to include a turning radius to and from the west end of the supersonic corridor.

9.4.2.4. Entry/Exit Point Four (4) (Silver Lake-Soda Lake). Route between R-2508 Complex directly over Silver Lake (EDW 064/87) to include a turning radius to or from Soda Lake to join/ exit the corridor.

9.4.3. Procedures.

9.4.3.1. Flights remaining within the R-2508 Complex boundaries:

9.4.3.1.1. Schedule under AFFTI 11-15.

9.4.3.1.2. Contact the radar facility monitoring your flight (SPORT/JOSHUA). If Daggett Shelf (R-2502E and Barstow East FL240 and above) is required, at least 15 minutes prior notice is required. Aircraft requiring the Daggett Shelf should schedule this area for additional airspace, otherwise expect possible delays from Los Angeles Air Route Traffic Control Center (ARTCC). Flights proposing supersonic runs contained within the R-2508 boundaries require no advance notification.

9.4.3.1.3. Before entering supersonic corridor, specify entry one (1)/exit one (1), number of runs, direction of flight, and altitudes.

9.4.3.1.4. If required, obtain overflight altitudes for R-2502N and R-2524 from JOSHUA/ SPORT.

9.4.3.1.5. Advise JOSHUA/SPORT when mission is complete.

9.4.3.2. Flights exiting the R-2508 Complex boundaries:

9.4.3.2.1. Coordinate proposed supersonic flight with Los Angeles ARTCC (Military Operations Specialist, DSN 640-1290 or commercial 265-8287) at least one (1) hour prior to takeoff. If possible, advance coordination on the day prior is recommended. Coordination will include:

9.4.3.2.1.1. Aircraft callsign and type.

9.4.3.2.1.2. Corridor entry/exit point(s).

9.4.3.2.1.3. Proposed time of crossing R-2508 boundary enroute to the entry point.

9.4.3.2.1.4. Altitude restrictions on entry or exit route (If critical for the specific mission).

9.4.3.2.1.5. Flight levels requested in Supersonic Corridor (describe flight profile)..

9.4.3.2.1.6. Whether you can enter/exit the corridor early.

9.4.3.2.1.7. Special requirements (additional runs, pacer/chase aircraft, equipment limitations, etc.).

9.4.3.2.1.8. Air/ground frequency to be used, if a discrete flight test frequency is requested.

9.4.3.2.1.9. Position of accompanying aircraft during supersonic runs.

9.4.3.2.1.10. Name and phone number for Los Angeles ARTCC to contact with coordination reply (allow approximately 15 minutes for reply).

9.4.3.3. In order to minimize the possibility of excessive restrictions which would adversely impact the mission, supersonic flights should be planned for time periods of 0700L to 0930L and 1230L to 1500L time.

9.4.3.4. Operations conducted with those portions of flight outside of the R-2508 Complex at FL390 and above can normally expect minimal restrictions.

9.4.3.5. Los Angeles ARTCC will accommodate requests to use the corridor outside the R-2508 boundaries to the maximum extent possible, consistent with other traffic conditions. However, due to complications caused by high density enroute traffic, the utilization of that portion of the corridor which extends beyond the boundary of the R-2508 Complex to the west (entry/exit point three (3)) shall be limited to those missions absolutely required.

9.4.3.6. Unless required by the mission and specifically approved, the entry and/or exit phases of the route which are outside the R-2508 Complex shall be conducted under the control of Los Angeles ARTCC at air traffic control assigned altitudes. Normally, pilots can expect to be released from center frequency at or prior to the entry point and will be cleared to re-contact center prior to the exit point (except on exit point one (1)).

9.4.3.7. Los Angeles ARTCC will file the flight plan. Fill out DD-175 and maintain in dispatch section. Do not file through Base Operations.

9.4.3.8. While taxiing or after departure notify JOSHUA/SPORT 10 minutes prior to R-2508 exit time with supersonic corridor request.

9.4.3.9. Advise JOSHUA/SPORT whenever proposed supersonic flight has been canceled or delayed by 30 minutes or more. Delayed flights may require re-coordination.

9.4.3.10. Once cleared into and observed on radar entering the corridor you should receive clearance to change to mission frequency.

9.4.3.11. Whenever an individual aircraft within a formation becomes separated by more than one (1) NM laterally or 100' vertically from the formation leader, the pilot will immediately squawk code 4000 with mode C altitude encoded.

9.4.3.12. If possible, plan an altitude above FL370 enroute to the corridor entry or exiting the corridor for return to R-2508.

9.4.3.13. When the North Spin is active above FL300 remain south of corridor centerline, on a ground track approximately between North Base and Main Base. If using entry/exit 1 eastbound, use a ground track over Mojave to Main Base, then continue east. These procedures ensure adequate clearance from North Spin.

9.4.3.14. When the West Spin is active above FL300, remain east of Kramer Junction. If using entry/exit point one (1) eastbound, use a ground track over California City to Kramer Junction through the North Spin. This provides adequate separation from activities conducted in the West Spin.

9.4.3.15. In the event of ATC computer or radar failure, or if these prearranged coordination procedures are not practicable, no aircraft will be cleared into the High Altitude Supersonic Corridor.

Chapter 10

LOW LEVELS

10.1. Low Level Military Training Routes. .

10.1.1. AFFTC is the originating/scheduling agency for several IFR Military Training Route (IR) and VFR (VR) military training routes. These routes must be scheduled under AFFTCR 55-15. Aircraft using published VR routes are required to squawk code 4000 unless otherwise assigned by ATC. Complete route descriptions are in Part AP/1B of FLIP.

10.1.2. AFFTC IR Routes:

10.1.2.1. IR 234. Cruise missile route from Desert MOA to Utah Test and Training Range (UTTR).

10.1.2.2. IR 235. Reversal of IR 234.

10.1.2.3. IR 236. Contained entirely in restricted airspace and R-2508 MOAs. Use only for missions when route is IMC. During VMC, use Green Route.

10.1.2.4. IR 237. Cruise missile route from Desert MOA near Tonopah and return to Desert MOA.

10.1.2.5. IR 238. Reversal of IR 237.

10.1.2.6. IR 425. Reversal of IR 200 from UTTR to W 289.

10.1.3. AFFTC VR Routes:

10.1.3.1. VR 1205. Low level route from near Coaldale VORTAC through Panamint Valley, R-2524 into R-2515.

10.1.3.2. VR 1206. Low level route from near Gorman through the Alpha Corridor to the PIRA.

10.1.3.3. VR 1214. Low level route from Lucerne Valley, past Beatty VORTAC to R-4807.

10.1.3.4. VR 1215. Low level route from Lucerne Valley, circling east and north of R-2502 into R-2524.

10.1.3.5. VR 12l7. Low level route from Silverwood Lake, past Hector VORTAC through the Barstow MOA into R-2515.

10.1.3.6. VR 1218. Low level route from Silverwood Lake, north of R-2501 and return to R-2515 through Barstow MOA.

10.1.3.7. VR 1293. Low level route from near Gorman to Isabella MOA.

10.1.4. Scheduling agencies for other low level routes within the R-2508 Complex.

10.1.4.1. MCAS El Toro - IR 211, IR 212.

10.1.4.2. NAS LeMoore - VR 1255, VR 1262.

10.1.4.3. Point Mugu - IR 200.

10.1.4.4. 146AW, Point Hueneme – Slow Speed Low Altitude Military Training Route (SR) 390.

10.1.5. Submit additional routes required for test purposes to 412 OG/CC for approval as part of the Test Safety Plan. Justification must include reason existing routes are not adequate.

10.1.6. Submit changes to these routes or procedures to 412 OSS/OSAA. 412 TW/CC retains final approval authority.

10.2. Low Level Operations In R-2508 Complex. (Fig 10-1)

10.2.1. Use the following routes for test missions test mission preparation, and proficiency training. Except for the B-1 Low Level (LL) route (VR1205/VR1214) which uses portions of published VR routes, all routes remain in the R-2508 Complex. The routes adhere to ground rules established by 412 TW/CC.

10.2.2. The routes and backgrounds are:

10.2.2.1. RED ROUTE - Original LANTIRN #1 Route.

10.2.2.2. BLUE ROUTE - Original LANTIRN VIP #2 Route.

10.2.2.3. BLACK ROUTE - Alternate extension for Red or Blue routes.

10.2.2.4. GREEN ROUTE - Route designed to be a continuation of Red route, or can be flown alone.

10.2.2.5. PURPLE ROUTE - Original F-16 #1.

10.2.2.6. AMBER ROUTE - Original LANTIRN #4.

10.2.2.7. BROWN ROUTE - Original AFTI F-16 VIP Route.

10.2.2.8. B1 LL - Uses parts of VR-1214 and VR-1205.

10.2.2.9. ORANGE ROUTE - Restricted to TPS use only.

Figure 10.1. AFFTC Low Level Routes.

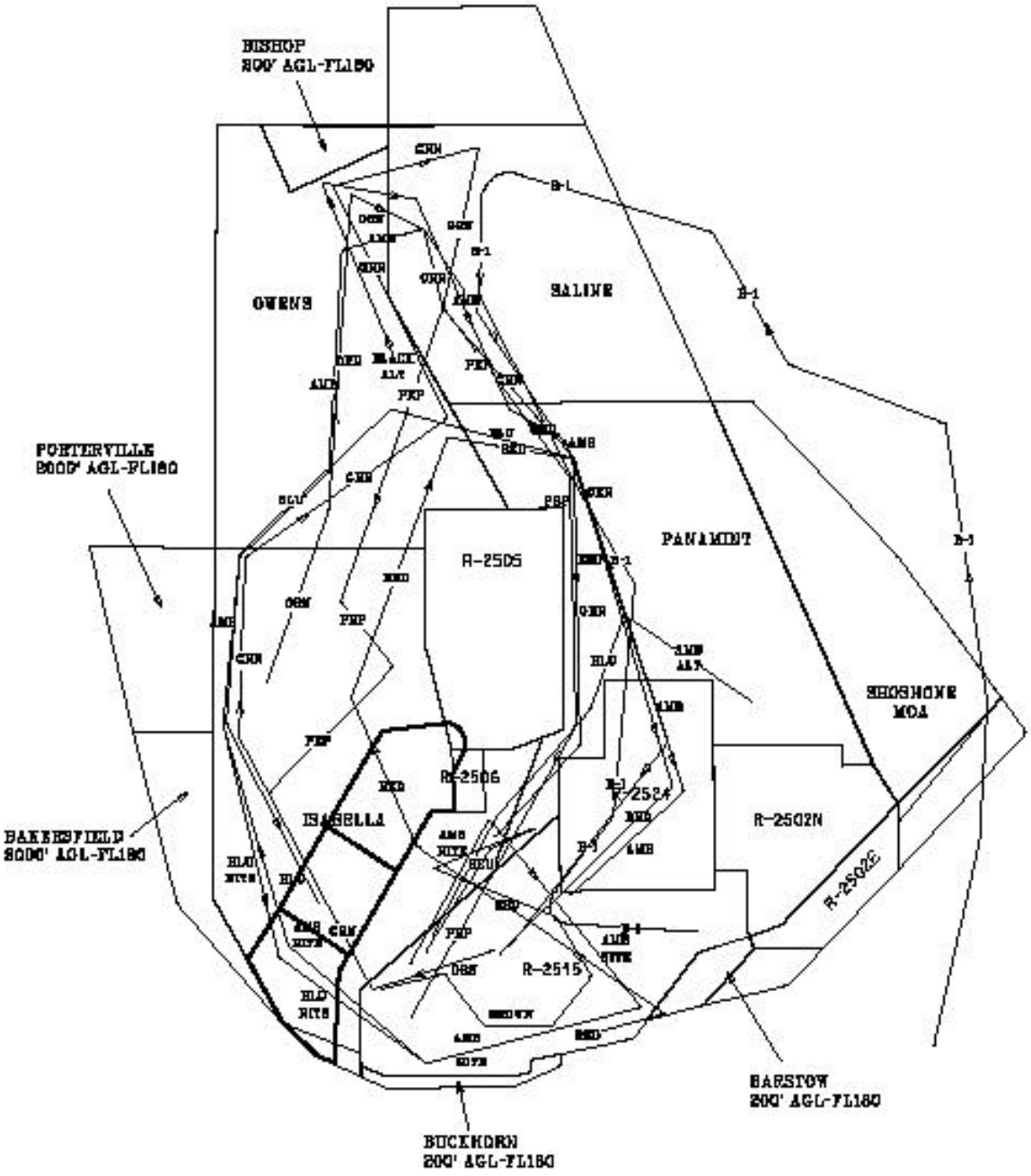
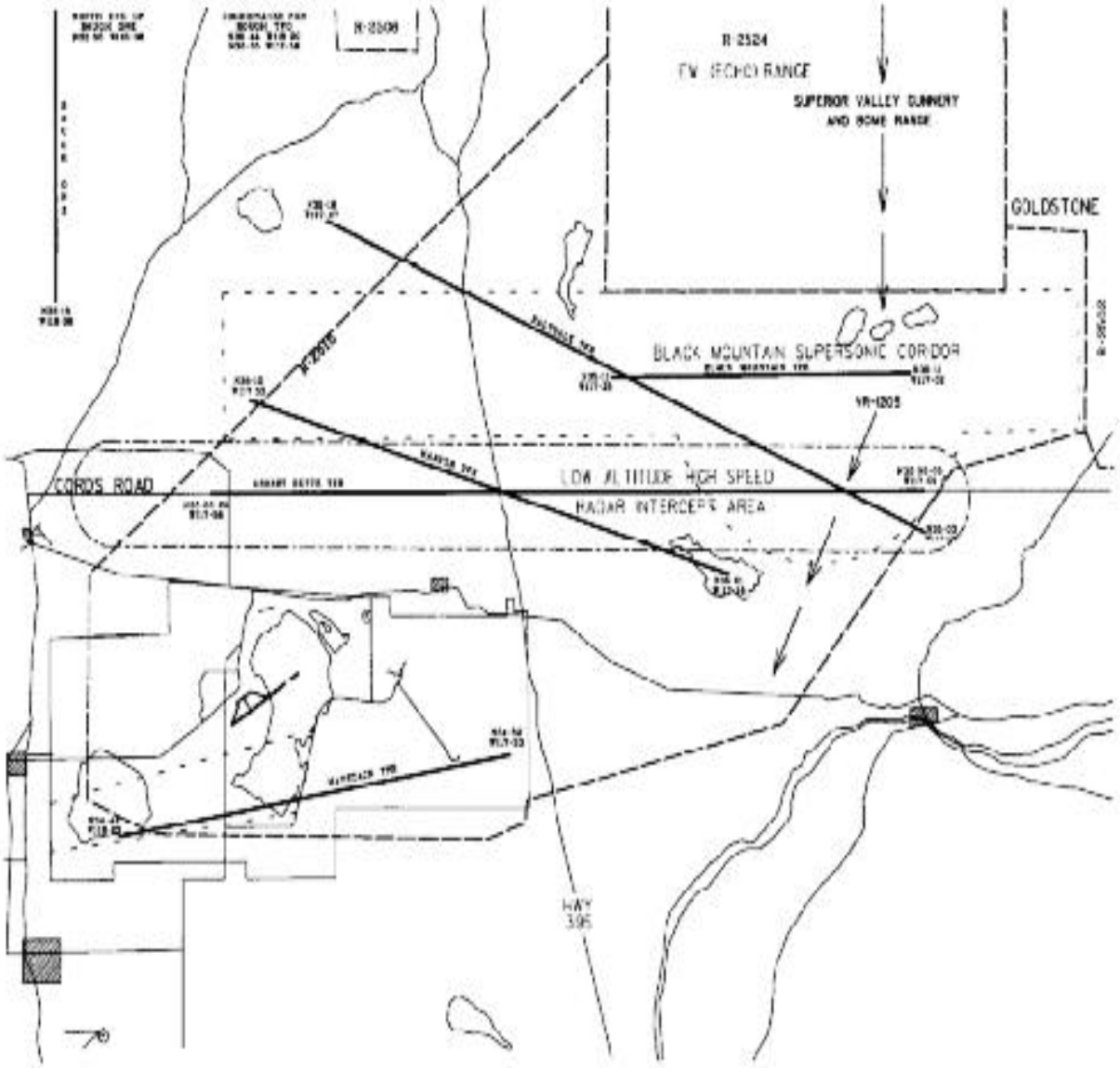


Figure 10.2. AFFTC Terrain Following Routes.



10.3. Terrain Following Routes (TFR). (Fig 10.2)

10.3.1. There are 7 single-leg TFRs approved for test use only. Route width is centerline navigation These are:

10.3.1.1. Haystack Range, 34½48’N 118½03’W to 34½52’N 117½33’W (supersonic tests permitted).

10.3.1.2. Desert Butte, 35½05.05’N 117½01’W to 35½05.0’N 117½56’W (underlies Cords Road Test Area).

10.3.1.3. Harper, 35½10’N 117½53’W to 35½01’N 117×16’W.

10.3.1.4. Saltdale, 35½19’N 117½47’W to 35½03’N 117½01’W.

10.3.1.5. Black Mountain, 35½11’N 117½02’W to 35½11’N 117½25’W (supersonic tests permitted).

10.3.1.6. Rough One, 35½15’N 118½08’W to 35½55’N 118½08’W.

10.3.1.7. Rough Two, 35½44’N 118½00’W to 35½55’N 117½59’W.

10.3.2. A terrain following area, Eureka Valley, is bounded by: 37½12’N 117½50’W to 37½12’N 117½42’W to 37½02’N 117½35’W to 36½59’N 117½42’W.

10.4. Low Level Restrictions.

10.4.1. 200' AGL to 1500' AGL. Test missions requiring altitudes lower than 200' AGL are treated on a case-by-case basis.

10.4.2. Subsonic except for Haystack and Black Mountain single leg segments.

10.4.3. Width is two (2) NM either side of centerline, except for TFRs and the B1 LL where width is as published for the VR routes.

10.4.4. Avoid flying along highways and/or valleys where civil air traffic is normally found.

10.4.5. Centerlines avoid charted, uncontrolled airports by three (3) NM miles laterally or 1500' AGL vertically. Avoid the Class D airspace of controlled airports (five (5) NM around the airport or 2,500’ AGL). Ensure flight paths do not infringe on the airport boundaries.

10.4.6. Avoid national parks and other wilderness areas where MOA floors are above route ceilings (3,000’ AGL or 3,000’ lateral).

10.4.7. Avoid the centerline of the saddle between Saline and Panamint Valleys.

10.4.8. Reviewed by AFFTC Flight Safety to avoid known major bird flyways/habitats as outlined in the "Bird Airstrike Hazard" (BASH) data bank. AFFTC Flight Safety advises 412 OG/CC if route restrictions/changes are needed.

10.4.9. The Bird Avoidance Model (BAM) for R-2508 depicts a “Caution” level or period of MODERATE bird activity during the periods of +/- one (1) hour of sunrise/sunset from October through March. Thus, schedulers will NOT schedule low level training sorties during these times. Test missions should avoid low level flight during these times unless flight within one hour of sunrise/ sunset is required to meet test objectives.

10.4.9.1. Squadron CC review, approval, and consideration of bird hazards is required for any such mission.

10.4.10. If R-2524 has been scheduled and confirmed for any route that transits this airspace, aircrews are required to establish contact with either China Control (301.0) or Echo Control (381.9) prior to entry. If contact can not be established aircrews SHALL exit the route and not enter R-2524.

10.4.11. Aircraft re-entering the R-2508 Complex on a low level shall re-established radio contact with JOSHUA/SPORT to receive a complex clearance and squawk.

10.4.12. Course reversals are not authorized. Aircraft that climb above the maximum altitude (1,500' AGL) are considered off the route and will not reenter without authorization from SPORT.

10.4.13. A gold mining operation located in the Panamint Valley located approximately seven (7) miles south of Ballarat (35×56'17"N, 117×11'09"W), conducts daily blasting between 1600 - 1730. Flying rock hazard to indeterminable altitudes. Direct overflight should be avoided during the blasting period.

10.4.14. The Inyokern Transition Area affects the Red, Amber, Orange, Green, and Blue/Night only alternate Low Levels and the Rough 1 TFR. Pilots shall use caution during activation times in avoiding the vertical/lateral limits of the transition area without a specific clearance to transit from JOSHUA/SPORT. See paragraph 13.23 for an explanation on the Inyokern Transition Area.

10.5. Scheduling.

10.5.1. Schedule and de-conflict routes with Center Scheduling or Current Ops, similar with the way the Alpha Corridor is now scheduled/de-conflicted.

Note: Routes are not de-conflicted from Navy routes, VRs, IRs, or other low-level operations.

10.5.2. Four routes (Red, Green, Amber, and Orange) provide a clockwise (CW) flow around R-2505, while two routes (Blue and Purple) proceed counterclockwise (CCW). The B1 LL route proceeds CW (within R-2508) for de-confliction and scheduling. The Black route, an extension to either the Red or Blue route, is flown CW with the Red route and CCW with the Blue route. The Brown route remains generally within R-2515 with only a short excursion outside the restricted area near Saltdale and Johannesburg.

10.5.3. Only same direction routes are used at the same time. The Brown route may be used at any time with SPORT traffic advisories mandatory.

10.5.4. Test and training missions may still use published VR and IR routes when required. Use AFFTC routes to the maximum extent practical since they avoid known high mid-air potential areas. These routes are not de-conflicted with published VR and IR routes.

10.5.5. Schedule routes using the weekly schedule. Add-ons are permitted but have no priority.

10.5.6. Daily.

10.5.6.1. Center Scheduling prepares next day's consolidated low level route schedule for Current Ops /SPORT.

10.5.6.2. Current Ops will de-conflict late requests using the daily schedule.

10.5.6.3. Unit duty officers will keep Current Ops advised of all delays, changes, or additional requests. Current Ops will advise SPORT of any changes.

10.5.7. Real-time.

10.5.7.1. Phone SPORT (73928/73931) prior to takeoff for short mission brief and schedule deconfliction. Standbys may usually be worked out at this time.

Note: Routes are de-conflicted only from other AFFTC operations. Other users have routes which coincide/conflict with AFFTC routes.

10.5.7.2. Inflight requests are not authorized. Pilots desiring low level routes as a back-up mission must plan, schedule, and prebrief SPORT as if it were their primary mission.

10.6. Low Level Procedures.

10.6.1. Fly at 500' AGL or above unless specifically required by an approved test, training plan, or preparing for tests in an approved test plan.

10.6.2. Flights shall be conducted at the minimum speed compatible with mission requirements.

10.6.3. Concurrent use of opposite direction routes is not authorized. Same direction de-confliction is established by time between entries; 40 minutes if a fast mover (F-15, etc.) is behind a slow mover (C-130H, etc.) or 15 minutes behind another fast mover. Except for Amber route, entries are normally at the beginning point. Mid-route entry is only approved if the route is not in use.

10.6.4. Each of the routes passes over or abeam N Panamint Lake (#38 of surveyed points list). N Panamint Lake corresponds to the following route points:

CLOCKWISE ROUTES		**DISTANCE FROM ENTRY POINT**
Red	Point 6	157 NM
Red w/Black extension	250 NM	
Green	Point 10	251 NM
Amber (Day)	Point 11	157 NM from Point 5
Amber (Night)	223 NM from Point 1	
B1 LL	8 NM short of Point 12	205 NM from VR 1214 Pt D
VR-1205	8 NM short of Point C	91 NM from VR 1205 Pt A
Orange	Point 7	192 NM

COUNTERCLOCKWISE ROUTES		**DISTANCE FROM ENTRY POINT**
Blue	Point 5	83 NM
Purple	Point 5	83 NM

10.6.5. Pilots furnish Estimated Time of Arrival (ETAs) for route entry point and N Panamint Lake to SPORT when requesting entry.

10.6.6. If another aircraft requesting same direction route does not have an ETA to N Panamint Lake which is at least 15 minutes later than a preceding aircraft, Sport delays entry or states, "Delay your arrival at N Panamint Lake by (X minutes)", in the case of B-1LL (Pt 12) or VR1205 (Pt C) routes.

Note: A N Panamint Lake time is only required when de-conflicting a Colored route with the B1 LL (Pt 12) or VR-1205 (Pt C).

10.6.7. Flights transiting the Trona Gap fly at 1500' AGL to avoid Trona and the Trona Airport or assure an airport/route lateral separation of three (3) NM 1500’ AGL.

10.6.8. 315.9 is the low level frequency used exclusively by all aircraft engaged in low level flight activities below 1,500 feet AGL within R-2508.

10.6.9. Contact SPORT on 315.9 and obtain clearance prior to entering a colored low level, VR, or TFR route. Advise SPORT of ETA to N Panamint Lake when requested.

10.6.10. SPORT ensures that only one aircraft/flight is allowed on a requested route or that entry times are separated by at least 15/40 minutes. For opposite direction routes, SPORT ensures one direction route is completed before opposite direction aircraft enters route.

10.6.11. Intersecting TFRs (Desert Butte/Harper, Saltdale/ Harper, and Saltdale/Black Mountain) will not be used simultaneously unless part of the same mission.

10.6.12. SPORT cannot provide radar services or nonradar separation when the mission departs R-2515. Remain on 315.9 while below 1500' AGL and on the low level route.

10.6.13. Enroute, make predetermined radio calls in the blind (315.9), based on points identified during preflight planning using the conflict information contained in route descriptions. Include call sign, number of aircraft, area/point entering, direction of flight and altitude AGL. During low level, restrict transmissions to:

10.6.13.1. Initial check in on frequency.

10.6.13.2. When entering a particular low level area (i.e., Kern River Valley, Walker Pass, Saline Valley, Owens Valley, etc.).

10.6.13.3. Calls necessary to de-conflict traffic when two flights operate in the same area.

10.6.14. Report exiting the route to SPORT or JOSHUA to reestablish radar identification. Missions requiring continued support after completing a low level route contact JOSHUA on appropriate ATC frequency or SPORT on 272.0 to provide these services on an assigned mission frequency.

10.6.15. Missions climbing above 1500' AGL exiting a route prior to the published exit point, contact JOSHUA or SPORT on the appropriate ATC frequency and specifically state you are exiting the route.

10.6.16. Clearance for a low level route does not authorize you to enter an internal restricted area (i.e. R-2524). The restricted area must be scheduled and authorized by the appropriate agency.

Note: The Department of Forestry has installed an HF converter/repeater on Sherman Peak located northwest of Domeland and Silver Peak located east of Bishop. These converters convert 315.9 to their HF frequency. Aircrews are able to communicate with any Department of Forestry aircraft working in the local area. When the Department of Forestry transmits, a tone will precede voice communications.

10.7. AFFTC Low Level Route Descriptions.

10.7.1. Red Route (CW).

PT	COORDINATES NORTH LAT/WEST LONG	ELEV	MAG CRSE	DIST	DESCRIPTION/SURVEY POINT
1	34×52.18/117×33.43	2820		0	Dry lake by Ask-15 site/#88
2	34×57.25/117×07.70	2925	062	21.8	Hill in Barstow Cx/#89
3	35×21.60/117×53.20	1920	288	45.0	Saltdale (abandoned bldgs on NW Koehn Lake/#109
4	35×44.80/118×07.40	3175	315	25.3	Walker Pass, Grvl Pit/#90
5	36×25.80/117×49.42	3796	005	44.0	Rd X E. Owens Lake/#91
		(Start Alternate (BLACK RT) at Pt 5 - Return to Pt 6)			
6	36×24.12/117×24.50	1695	078	20.7	N. Panamint Lake hill/#38
7	35×38.50/117×04.45	2198	145	49.2	Convoy hill in R-2524/#46
8	35×07.52/117×36.34	3002	205	39.0	Hwy. 395/Block House/#21
		(BLACK ROUTE ALTERNATE)			
	from Pt 5 to:				
1	36×37.80/117×59.30	4200	320	14.0	W.Slope Inyo Mtn Rng/#105
2	37×03.38/118×13.58	3880	320	40.7	NW end Tinemaha Dam/#104
3	37×00.90/117×54.60	5780	085	15.0	Mtn cabin 1.5 mi E. of Road/#103
4	36×28.99/117×35.80	5310	140	34.3	Water tank 2 mi S. of Road (Wilson Ranch)/ #44
	to Pt 6		098	10.0	

Remarks: Pt 1 to 2 along Hwy. 58 close to R-2515 boundary; **Pt 3 to 4 enters the Inyokern Transition Area;** Pt 4 to 5 avoid Sacatar Meadows Airport 1500' AGL or three (3) NM; Pt 6 to 7 to 8 requires scheduling R-2524.

RED ROUTE	**CONFLICTS**
Pt 3 to 5	Purple Route Pt 8 to 10
Pt 5 to 7	Blue Route Pt 4 to 6

RED ROUTE ALTERNATE (BLACK ROUTE) CONFLICTS

Pts 1 through 4	Purple Route Pt 6 to 7
	Blue/Black Route Pts 1 thru 4

10.7.2. Blue Route Counter Clockwise (CCW).

PT	COORDINATES NORTH LAT/ WEST LONG	ELEV	MAG CRSE	DIST	DESCRIPTION/SURVEYPOINT
1	35×09.92/117×51.29	2573		0.0	Cal City tank/#40
2	35×29.25/117×38.29	3225	015	22.0	RR Y Searles Sta./#25
3	35×44.61/117×19.50	1618	035	21.2	Searles Lk storage yd. Cntr large bldg/#64

4	36×02.04/117×16.14	1210	353	19.0	Radar site at Ballarat/#26
5	36×23.07/117×24.22	2030	328	21.0	N. Lake Hill, Panamint/#65
		(Start alternate (BLACK ROUTE) at Pt 5 - return to Pt 6)			

PT	COORDINATES NORTH LAT/WEST LONG	ELEV	MAG CRSE	DIST	DESCRIPTION/SURVEY POINT
6	36×28.59/118×00.86	3650	264	29.0	Bartlett mine (abandoned) Owens Lk/#67
7	36×18.83/118×12.39	9930	227	13.0	Templeton Mtn./#68
8	36×06.58/118×29.06	8245	215	18.6	Needles Lookout Twr/#69
9	35×42.34/118×33.52	6980	166	24.0	Microwave Twr, Hill West of Isabella/#70
		(Start Night Only Alternate)			
10	35×15.00/118×15.00	6698	141	32.3	Emerald Mtn
		(BLACK ROUTE ALTERNATE)			
	from Pt 5 to:				
1	36×28.99/117×36.56	5310	290	11.0	2 mi. S. of Road/#44
2	37×00.90/117×54.60	5780	320	34.3	Cabin 1.5 mi. E. of Rd/#103
3	37×03.38/118×13.58	3880	265	15.0	NW end Tinemaha Dam/#104
4	36×37.80/117×59.30	4200	140	40.7	W.Slope Inyo Mtn Rng/#105
	To Pt 6		175	12.0	
		(NIGHT ONLY ALTERNATE)			
	From Pt 9 to				
11	35×02.20/118×18.70	3550	151	41.0	Mojave Cement Plant/#98
12	34×49.14/117×53.48	2295	107	25.0	Wtr Tnk at Sled Trk/#35

Remarks: Pt 2 to 3 avoid Trona and Trona Aprt by 1500' AGL or three (3) NM. At Point 9 until 10 miles past Point 9 deviate West of course to avoid Isabella Dam and settlement. Pt 9 to Pt 12 (Night Only Alternate) enters the Inyokern Transition Area.

BLUE ROUTE	CONFLICTS	BLUE ROUTE	CONFLICTS
Pt 2 - 3	Green Rte Pt 11 - 12	Pt 7 - 8	Amber Rte Pt 7 to 8
Pt 3 - 4	Green Rte Pt 10 - 11	Pt 8 - 9	Amber Rte Pt 7 to 8,
Pt 4 - 5	Green Rte Pt 10 - 11,		Green Rte Pt 3 to 4
	Red Rte Pt 6 - 7,		
	Amber Rte Pt 11 - 12	Pt 9 - 10	Amber Rte Pt 5 to 6,
Pt 5-6	Red Rte Pt 5-6		Green Rte Pt 2 to 3
	BLUE Rte ALTERNATE (BLACK Rte) CONFLICTS		
Pts 1 - 4	Amber Rte Pt 10 - 11, Green Rte Pts 5 - 9		
	Red/Black Alternate Pt. 1 thru 4		

10.7.3. Green Route (CW).

PT	COORDINATES NORTH LAT/WEST LONG	ELEV	MAG CRSE	DIST	DESCRIPTION/SURVEY POINT
1	35×07.52/117×36.34	3002		0	Blockhouse/#21
2	35×01.29/118×01.30	2400	240	21.1	Relay Station/#56
3	35×38.78/118-28.82	2605	315	43.8	Cntr of W Dam/#7
4	36×07.60/118×27.30	5500	348	29.2	E. bend in river
5	36×28.10/117×49.30	3800	045	35.8	Rd X
6	37×03.02/118×12.50	3800	318	41.0	SE tip of dam/See #104
7	37×05.60/117×57.30	6000	067	12.5	E. Rd bend
8	37×07.30/117×43.40	2800	063	11.5	W. tip dry lake
9	36×41.80/117×48.70	1300	173	35.7	Bldg S. of Salt Lk/See #96
10	36×24.12/117×24.50	1695	096	21.0	N. lake hill/#38
11	35×39.20/117×21.50	1800	16	45.3	SW tip Searles Lk/See #55
12	35×25.30/117×40.30	2800	213	20.5	Rd/RR crossing/See #16

Remarks:

- Pt 1 is end point of RED ROUTE
- Pt 2 to 3 enters the Inyokern Transition Area.
- Pt 2 to 3 avoid Mojave airport by 5NM or 5,300’ MSL, and Cal City and Kelso Valley airports by 1500' AGL or three (3) NM. Btn 10 miles prior to, and three (3) miles past Point 3, deviate West of course to avoid Isabella Dam and settlement.
- Pt 3 to 4 avoid Isabella Aprt by 1500' AGL or three (3) NM
- Pt 10 to 11 avoid Trona and Trona Aprt by 1500’ AGL or three (3) NM

GREEN ROUTE	CONFLICTS
Pt 1 to 2	Purple Route Pt 1 to 2
Pt 2 to 5	Blue Route Pt 5 to 10
	Purple Route Pt 7 to 8
Pt 5 to 9	Blue/Black Route (Alternate)
Pt 9 to 12	Blue Route Pt 1 to 6
	Purple Route Pt 3 to 7

10.7.4. Purple Route (CCW).

PT	COORDINATES NORTH LAT/ WEST LONG	ELEV	MAG CRSE	DIST	DESCRIPTION/SURVEY POINT
1	34×55.80/117×53.20	2296		0.0	F-16 Ramp
2	34×54.80/117×52.10	2309		0.0	Rwy 22 TD Point
3	35×12.70/117×45.20	3310	020	26.0	Hill TOS Hack
4	35×41.80/117×22.80	1850	018	34.9	RR bend/See #55
5	36×03.20/117×22.80	2600	345	21.0	Mine O'fly Fix
6	36×20.38/117×25.34	1576	337	110.3	Rd X CCRP Wpn Del/#45
		Offset Aim Pt (OAP) Rng 18573 Brg 018.4 Elev 2030			
7	36×41.77/117×49.48	1060	303	29.2	SW tip Salt Lake/#96
					Alt Cal
8	36×01.20/118×14.70	9383	192	46.0	Firewatch Tower
9	35×52.00/118×00.00	7000	114	16.4	Mt. Peak/road
10	35×28.60/118×21.70	6800	206	27.0	Firewatch tower

Remarks:

Pt 4 to 5 avoid Trona and Trona Airport by 1500' AGL or three (3) mi.

Pt 8 to 9 avoid Domeland and Sacatar Mdws airport.

PURPLE ROUTE	CONFLICTS
Pt 2 to 3	Green Route Pt 1 to 2
Pt 3 to 4	Green Route Pt 11 to 12
Pt 4 to 5	Green Route Pt 10 to 11
Pt 5 to 6	Red Route Pt 6 to 7
	Green Route Pt 10 to 11
	Amber Route Pt 11 to 12
Pt 6 to 7	Amber Route Pt 10 to 11
	Green Route Pt 9 to 10
Pt 8 to 9	Green Route Pt 4 to 5

10.7.5. Amber Route (CW).

PT	COORDINATES NORTH LAT/ WEST LONG	ELEV	MAG CRSE	DIST	DESCRIPTION/SURVEY POINT
1	35×05.13/117×56.29	2849		0.0	Pk of Desert Butte/#73
2	35×28.79/117×40.94	4470	010	29.0	Laurel Mt. Radar/#23
3	34×59.06/117×14.20	2563	127	310.2	Mtn Peak/#74
4	34×49.14/117×53.48	2295	237	33.0	Wtr Tnk at Sled Trk/#35
5	35×06.62/118×19.56	3930	293	28.4	Thpi Fwy/RR ovrpass/#31
6	35×42.34/118×33.52	6980	328	37.8	Tower W Isabella/#70
7	36×06.60/118×29.06	8245	354	24.8	Twr W. side/Needles/#69
8	36×18.83/118×12.39	9930	032	18.2	Templeton Mtn/#68
9	36×44.20/118×08.62	3821	352	24.9	Manzanar abandoned Rwy X/#28
		OAP1 Rng 3700 Brg 198.0 Elev 3855 Building			
10	36×51.55/117×52.69	2315	044	15.3	Danny's Mound/#27
11	36×24.12/117×24.50	1695	125	36.1	N. lake hill/#38 (See #65)
12	36×02.04/117×16.14	1210	148	23.5	Rdr W./Ballarat Lk/#26
13	35×34.63/117×01.87	2115	142	30.0	Stor site E. end Aprt/#76
14	35×16.74/117×23.89	2845	210	25.5	Bldgs S. Ctr of Cuddyback Aprt/#20
From Pt 12		(ALTERNATE)			
13A	35×46.05/116×49.98	2335	112	25.5	Lost Lake/#54
	OAP2	Rng 31600	Brg 140.0		Elev 2200
	VIP	Rng 45600	Brg 109.0		Elev 1696

Remarks: Pts 1 through 5 are for night flights only. Pt 4 to 6 enters the Inyokern Transition Area. For day flight, proceed direct to Pt 5. Pt 5 is located within the Inyokern Transition Area. Cross Pt 5 at 15,000’ MSL or higher to descend and enter the route approximately five (5) nm north of Pt 5. Pt 3 to 4 requires PIRA and Alpha Corridor. Pt 5 to 6 avoid Flying B Aprt by 1500' AGL or three (3) mi. Btn 10 and six (6) miles prior to Pt 6, deviate West of course to avoid Isabella Dam and settlement. Pt 8 to 9 climb to 3000' AGL (15,000 MSL), 16 miles prior to Pt 9 (nine (9) miles after Pt 8), to overfly Sequoia/ John Muir. Descend 11 miles prior to Pt 9 (14 miles after Pt 8). Pt 10 to 11 crosses Saline Valley Saddle, use caution for other aircraft. Pt 12 to 13 requires R-2524. Take alternate to Pt 13A or end route at Pt 12 if R-2524 not available. Pt 13 to 14 requires R-2524.

AMBER ROUTE	**CONFLICTS**		
Pt 5 to 6	Blue Route Pt 9 to 10	Pt 10 to 11	Purple Route Pt 6 to 7
Pt 6 to 7	Blue Route Pt 8 to 9		Blue/Black Rte Alternate
Pt 7 to 8	Blue Route Pt 7 to 8	Pt 11 to 12	Blue Route Pt 4 to 5
			Purple Route Pt 5 to 6
		Pt 12 to 13	Blue Route Pt 3 to 4

10.7.6. Brown Route.

PT	**COORDINATES NORTH LAT/ WEST LONG**	**ELEV**	**MAG CRSE**	**DIST**	**DESCRIPTION/SURVEY POINT**
1	35×01.29/118×01.30	2675		0.0	Hwy. 58 N. of RR bend/See #56
2	35×03.50/117×49.00	2365	058	10.0	Clay Mine Rd X
3	34×55.50/117×41.00	2900	127	10.2	Mars Rd 1 mi S. AFAL
4	34×55.50/117×28.00	2775	075	10.9	Bldgs Kramer Hills
5	35×03.00/117×20.00	2275	027	10.5	Harper Lk Rd/RR X
6	35×12.00/117×27.00	3225	314	11.0	Fremont Pk Road
7	35×19.50/117×51.00	1990	275	21.2	S. Shore Koehn Lk
8	35×25.50/117×31.00	4985	052	17.9	Dome Mt.
9	35×22.50/117×40.00	3500	230	8.6	Randsburg
10	35×06.87/117×52.62	3145	197	18.0	Castle Butte/#22

Remarks: Pt 3 to 4 requires PIRA. Avoid the Det 7 AFRL by 5,300” MSL unless precoordinated.

10.7.7. B1 LL (CCW).

PT	COORDINATES NORTH LAT/ WEST LONG	ELEV	MAG CRSE	DIST	DESCRIPTION/SURVEY POINT
1	34×27.00/117×00.00			0.0	VR 1214 Pt A
2	34×32.00/116×55.00		023	6.8	VR 1214 Pt B
3	34×51.00/116×34.00		029	25.6	VR 1214 Pt C
4	35×22.00/116×09.00		020	310.4	VR 1214 Pt D
5	35×49.00/116×08.00		347	26.8	VR 1214 Pt E
6	36×08.00/116×11.00		338	19.0	VR 1214 Pt F
7	36×30.00/116×15.00		338	22.4	VR 1214 Pt G
8	36×38.00/116×38.00		278	20.0	
		Climb to cross Pt 9 at 3000' AGL or above			
9	36×53.00/116×54.00		305	20.0	
		Enter R-2508 Saline Work Area			
10	37×05.50/117×46.00		272	13 NM prior to Pt 10, Lt turn descending to int. VR 1205.	
		Established on VR 1205 13 NM prior to Pt 11			
11	36×40.00/117×41.00		156		VR 1205 Pt B
12	36×15.00/117×21.00		132	30.0	VR 1205 Pt C
13	36×04.00/117×11.00		130	13.8	VR 1205 Pt D
14	35×30.00/117×15.0		170	34.0	R2524 Alternate
15	35×10.00/117×33.00		202	13NM prior to Pt 15, Lt turn to 075 mag to establish on Black Mountain TFR.	
16	35×11.00/117×02.00		075	Established on Black Mt. TFR 13 NM prior to Pt 16.	

10.7.8. Orange Route (CW).

PT	COORDINATES NORTH LAT/ WEST LONG	ELEV	MAG CRSE	DIST	DESCRIPTION/SURVEY POINT
0	34×54.90/117×51.70	2282			Edwards Runway 22
1	35×04.00/118×09.50	2787			Mojave Airport
*****2	35×38.80/118×28.20	2600	322	38.0	Isabella Dam
*3	36×12.30/118×11.70	9410	008	36.1	Monache Mountain
*4	37×03.30/118×13.30	4500	344	51.0	Dam Spillway
*5	36×53.20/117×51.20	2500	104	20.5	Dry lake
*6	36×42.00/117×49.20	1200	158	11.3	W. tip of lake
*7	36×20.40/117×25.20	1575	124	29.0	Crossroads
*8	36×02.00/117×14.70	1200	141	20.3	Road/Lake shore
*9	35×42.20/117×23.70	1650	186	21.1	Factory

Remarks:

TPS has scheduling priority

Avoid Mojave airport by 5NM or 5,300’ MSL

Pt 1 to 2 enters the Inyokern Transition Area

10 miles prior to 10 miles past Pt 2 deviate west to avoid Isabella Dam settlement and Kern Airport by 3NM and 1500” AGL.

Between Pt 3 and Pt 4 deviate east to avoid Kings Canyon National Park

Between Pt 3 and Pt 4 deviate east to avoid Independence airport by three (3) NM and 1500’ AGL

Pt 8 to Pt 9 avoid Trona and the Trona airport by three (3) NM and 1500’ AGL

Begin climbout from low level three (3) NM south of Trona.

ORANGE ROUTE	CONFLICTS
Pt 2 to 3	Purple Rt Pt 7 to 8
Pt 4	Close to Green Rt Pt 6 and Black Rt Alternate Pt 2.
Pt 4 to 5	Green Rt Pt 5 to 6
Pt 6	Close to Green Rt Pt 9 and Purple Rt Pt 7
Pt 6 to 7	Purple Rt Pt 6 to 7 and Green Rt Pt 9 to 10
Pt 7 to 8	Purple Rt Pt 5 to 6
Pt 8 to 9	All routes that pass through the Trona Gap

Chapter 11

TRAFFIC PATTERNS AND ADJACENT AIRFIELD OPERATIONS

11.1. Traffic Patterns.

11.1.1. Flight activities at Edwards involve many diverse and complex pattern operations. To reduce the possibility of conflicts in any of the different patterns, all AFFTC pilots will be familiar with all patterns flown at Edwards. This will assist ATC and aircrews who are not familiar to avoid potential conflicts.

11.1.2. On initial contact with Tower advise of intended type of approach and landing. Aircraft requesting deviations to any of the pattern procedures outlined in this chapter must receive specific Tower approval.

11.1.3. Chase Aircraft. In the traffic pattern do not fly slower than final approach airspeed/angle of attack for the configuration and fuel load. Minimum altitude is 200' AGL. Instructor Pilots (IP) instructing single seat aircraft checkouts may descend to 50' AGL minimum.

11.1.4. Traffic Sequencing. The diverse traffic mix and number of successive approaches sometimes require aircraft to be re-sequenced in the pattern. Aircrews are not to initiate a 360× turn on final unless authorized or instructed by the tower. If re-sequencing is necessary, tower will issue appropriate climb out instructions.

11.1.5. Wake Turbulence Separation. Aircrews must be aware of preceding aircraft and wind conditions. When following a large or heavy aircraft, a minimum of two (2) minutes separation is required. A cross wind component of three (3) to seven (7) knots will hold the vortex on the runway and, under these conditions, the minimum separation should be extended. Use three (3) minutes as a guide. It is the pilot's responsibility to assure the required wake turbulence separation (See DoD FLIP GP, Chap 5 for FAA and ICAO wake turbulence separation criteria.)

11.1.6. Runway Overflight. Aircraft will maintain at least 500’ vertical/lateral separation when overflying aircraft, personnel, or equipment on the runway. Heavy aircraft will maintain at least 1,000’ vertical/lateral separation. Responsibility for separation rests with the pilot.

11.1.7. Circling Approach. Circling approaches to Rwy 4/22 are not authorized to be flown with aircraft in the traffic pattern at South Base due to the existing altitude conflict between these operations and the increased likelihood of wake turbulence problems/hazards. Aircraft requesting circling approaches to Rwy 4/22 should advise the Tower with enough lead time for the tower to terminate South Base operations in order to afford mission aircraft priority.

11.2. Opposite Direction Operations. .

11.2.1. Do not request opposite direction takeoffs or approaches except as follows:

11.2.1.1. Aircraft emergency.

11.2.1.2. Required by an approved test plan.

11.2.1.3. Required for munitions de-arming.

11.2.1.4. Aircraft performance limitations preclude using primary runway.

11.2.2. Tower may apply opposite direction procedures to transient aircraft to meet ATC operational requirements.

Note: Tower flyby is not considered opposite direction traffic during Rwy 4 operations. Use caution when turning from the flyby line to flyby downwind.

11.2.3. Opposite direction traffic will not be allowed unless the Digital Brite Radar Indicator (DBRITE) is operational.

11.2.4. Aircraft requesting opposite direction operations can expect delays until the following restrictions are met.

11.2.4.1. IFR aircraft. (VFR aircraft using IFR procedures will also use this separation criteria.)

11.2.4.1.1. Arrival vs. Arrival - the succeeding arrival is 10 flying miles from the runway after the preceding opposite direction arrival has crossed the landing threshold for a full stop.

11.2.4.1.2. Arrival vs. Departure and vice versa - the departing aircraft is airborne and has turned on a diverging course prior to the arriving aircraft reaching 10 flying miles from the runway.

11.2.4.2. VFR aircraft. Aircraft are handled on a case-by-case basis depending on existing traffic. Cutoff points for arriving aircraft are normally Buckhorn Lake for Rwy 4 and East Lake Shore for Rwy 22 (preceding opposite direction arriving aircraft has crossed the landing threshold for a full stop or opposite direction departing aircraft has turned on a diverging course).

11.3. Reduced Runway Separations (RRS).

11.3.1. RRS is authorized on Edwards AFB Rwy 4/22 from sunrise to sunset. Tower controllers must be able to determine distances by reference to suitable landmarks.

11.3.2. RRS is authorized between AFFTC fighter-type and T-38 aircraft. RRS is not authorized with transient aircraft. These procedures do not apply to other than fighter/trainer-type aircraft.

11.3.3. RRS is not authorized when emergency aircraft are involved, aircraft are cleared for the option, weather is IFR, Control Tower supervisor determines that safety of aircraft will be jeopardized, or the runway surface condition (RSC) is wet.

11.3.4. FAA Order 7110.65 runway separation standards will be used whenever RSS does not apply or is not authorized.

11.3.5. It is ultimately the pilot's decision to accept or reject RRS. Pilots must inform ATC as soon as possible that RRS cannot be accepted so the controller can adjust sequencing as necessary to accommodate the aircraft. Furthermore, RRS does not relieve the pilot of responsibility for wake turbulence separation.

11.3.6. Table 11-1 summarizes authorized RRS standards (similar means same airframe, i.e. F-15 to F-15 and F-16 to F-16, and dissimilar means different airframe, i.e. F-15 to F-16 and F-16 to T-38):

TYPE LANDING	BEHIND A	SIMILAR	DISSIMILAR
Full Stop	Full Stop	3,000'	6,000'
	Low Approach	3,000'	6,000'

	Touch and Go	3,000’	6,000’
Low Approach	Full Stop	6,000’	6,000’
	Low Approach	3,000’	6,000’
	Touch and Go	6,000’	6,000’
Touch and Go	Full Stop	6,000’	6,000’
	Low Approach	3,000’	6,000’
	Touch and Go	3,000’	6,000’

Note 1: To ensure maximum safety for the following aircraft, pilots of preceding “full stop” aircraft are requested to the maximum extent possible to remain to the northern side of the runway upon passing the 9,000 foot distance remaining marker.

Note 2: When aircraft conducting a formation landing are involved, the following situations require full runway separation: Formation Low Approach behind a Touch and Go, Touch and Go behind a Formation Full Stop. All other situations with aircraft in formation require 6,000 feet of runway separation.

11.3.7. All aircraft must maintain at least 500 feet lateral or vertical separation when over-flying aircraft on the runway. Responsibility for this separation rests with the pilot.

11.4. Runway Complex/Landing Area. (Fig 11-1 & 11-2)

11.4.1. Tower controls the flow of all traffic in Class D airspace, to and from all landing surfaces. North and South Base runway environments are not visible and therefore tower does not actively control traffic once established in the North or South Base traffic patterns.

11.4.2. Main Base Rwy 4/22 (14,994’ by 300’). Normally, all aircraft use this runway. Rwy 22 is the designated calm wind runway and will be the active runway unless the tailwind component exceeds 10 knots or near sunset when landing into the setting sun creates a landing hazard. Rwy 4 has a 999’ x 300’ asphalt underrun. Rwy 22 has a 1,800’ x 300’ concrete underrun. Adjoining Rwy 22 underrun is a 55’ x 300’ asphalt transition area leading to a 9,588’ x 300’ Rwy 4/22 lakebed extension. See Chapter 12 for emergency use of Rwy 22 underrun.

11.4.3. North Base Rwy 6/24 (5,998’ by 150’). Due to runway conditions, North Base is limited to reciprocating aircraft with the following limitations. All turns will occur on the concrete areas of the runway located midfield and the approach and departure end. If unable to exit at the center taxiway, aircraft must proceed to the departure end to initiate the turn and exit at midfield. Test missions using North Base will schedule fire truck support under AFFTCR 55-15.

11.4.4. South Base Rwy 6/24 (8,000’ by 50”) Takeoffs landings at South Base are only authorized on the center 50’ keel of the runway. Runway has standard “basic runway” markings (w/o lights and distance remaining markers). Runway is limited to conventional aircraft weighing 12,500 pounds or less for normal operations. See Chapter 12, Emergency Recovery Landing Area, for emergency recovery of fighter/trainer aircraft.

11.4.5. Lakebed Runways. These runways are available for use when not wet and free of potholes or other unspecified hazards which could preclude a safe landing. Daily surveillance is done to assure maintainability. A color coding system is used to accurately reflect the actual lakebed runway condition/usability.

Rogers Dry Lake

*5L/23R - 22,175’ x 300’

**5R/23L - 14,999’ x 300’

***6/24 - 7,050’ x 300’

7/25 - 23,100’ x 300’

9/27 - 9,991’ x 300’

12/30 - 9,235’ x 600’ Left/Right

15/33 - 29,487’ x 300’

17/35 - 39,097’ x 900’ Left/Right/Center

18/36 - 23,086’ x 900’ Left/Right/Center

Compass Rose - 2,000’ radius

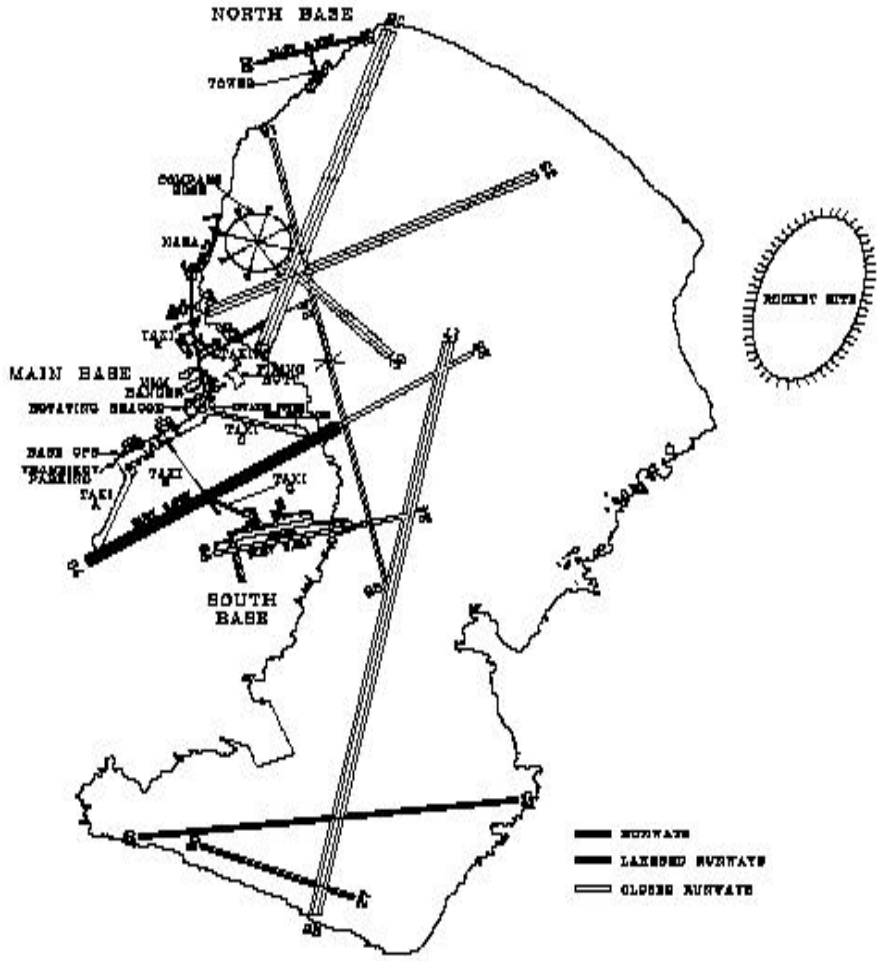
Rosamond Dry Lake

2/20 - 21,119’ x 300’

11/29 - 21,320’ x 300’

23R has a displaced threshold 6,000’ from the approach end. Aircrews may continue to use Rwy 23R for practice and emergency lakebed landings but should not land prior to displaced threshold or within the marked areas (marked with black oil border) along the first 6,600’ near the centerline.

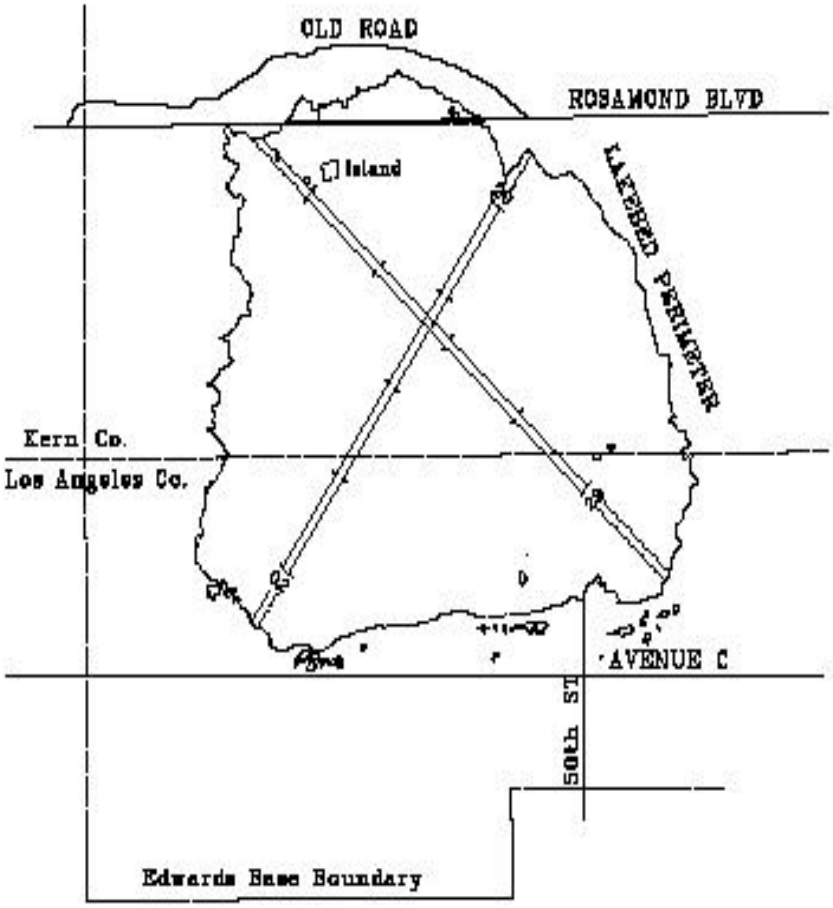
Figure 11.1. Runway Complex/Landing Area.



*23L is restricted for space shuttle use only. If an emergency landing on Rwy 23 is necessary, give first consideration to 23R. However, 23L may be used if the emergency precludes 23R with the restrictions identified above.

**6/24 (Taxiway Delta extension) is actually aligned 220 degrees. Numbered 24 to avoid confusion with main runway and its lakebed extension. Lakebed Rwy 24 is a single painted line. This runway is normally used as an entry/exit point to the lakebed via Taxiway Delta. Turboprop and conventional aircraft may use for normal takeoff and landing. Fighter/trainer type aircraft should not use 6/24 for recovery unless it is the only available option.

Figure 11.2. Rosamond Dry Lake.



11.4.6. Lakebed Runway Color Coding.

11.4.6.1. See Table 11-2 for color coding system used to accurately reflect lakebed runway conditions.

Table 11.1. Lakebed Runway Condition.

COLOR	MEANING	REMARKS
Green	Open for normal landing	Runway is dry, free of potholes or hazards which would preclude a safe landing, and has been recently inspected.
Green/Black	Primary Shuttle Runway	Status of Runway is Green; however runways are open for space shuttle and emergency landings only.
Yellow	Open for emergency use only	Runway may be wet but is free of potholes or other hazards which would preclude a safe landing. Runway has not been recently inspected. May indicate repair crews on runway but can be opened on request.
Red	Landings not recommended	Runway has standing water, potholes or other unspecified hazards which could preclude a safe landing. May indicate repair crews on runway and cannot be opened.

11.4.6.2. Low approaches to yellow/red lakebed runways must be authorized by 412OG/CC.

11.4.6.3. Simulated Flameouts to a low approach are authorized to green/black Lakebed Runways.

11.4.7. Light Aircraft Alternate Landing Area. Taxiway C (east taxiway) may be used as an alternate landing area for conventional aircraft weighing 12,500 pounds or less, during excessive wind periods when the crosswind is too great for the main runway and when a lakebed runway cannot be used. See AFFTCI 11-2, Chapter Six (6), for taxiway preparation and ground crew procedures.

11.5. Traffic Priorities.

11.5.1. Normally tower provides air traffic control services to aircraft on a “first come, first served” basis as circumstances permit. However, due to special handling requirements, the following priorities will be employed to provide the most expeditious handling of air traffic.

11.5.1.1. Emergencies.

11.5.1.2. Aeromedical evacuation flights (when the pilot requests priority) or civilian air ambulance flights (call sign LIFEGUARD).

11.5.1.3. Search and rescue missions (when requested by the pilot).

11.5.1.4. Flight Check aircraft.

11.5.1.5. Priority alpha flights.

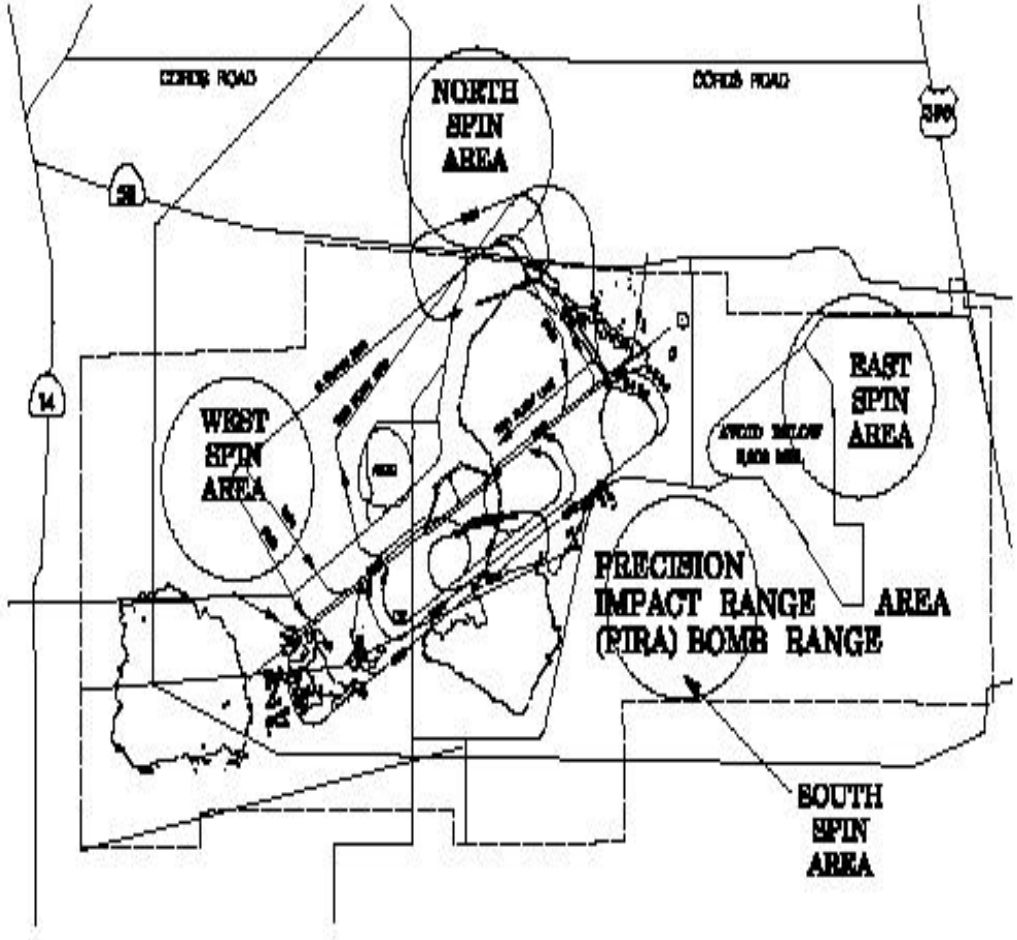
11.5.1.6. Full stops.

11.5.1.7. Departures.

11.5.1.8. Touch-and-go/low approach.

11.6. Main Base Traffic Patterns. (Fig 11-3)

Figure 11.3. Edwards Traffic Patterns.



11.6.1. Tower may approve modified traffic patterns to expedite traffic.

Note: Heavy aircraft will conduct transition training at Palmdale when traffic at Edwards is moderate to heavy.

Note: Use of landing lights is mandatory for all landing patterns except for T-38s executing shuttle or lifting body patterns.

11.6.2. Overflight Restrictions

11.6.2.1. Avoid flight within the PIRA and Alpha Corridor unless cleared by SPORT.

11.6.2.2. Avoid flight over "P" housing area.

11.6.2.3. Avoid flight over the Det 7 AFRL below 5,300’ MSL.

11.6.3. Separation between Departures and Overhead Traffic Pattern

11.6.3.1. All aircraft on departure, missed approach, low approach, or touch and go will maintain at or below 3,300’ MSL until departure end of the runway unless otherwise instructed by tower.

11.6.3.2. When applicable tower will advise transient aircraft of this restriction.

11.6.4. Overhead Patterns: Overhead pattern airspeed is 300 KIAS. Heavy aircraft fly first overhead at 3,800' MSL and successive closed patterns at 3,300' MSL.

11.6.4.1. Rwy 4. Enter in a left-hand 45o turn to initial entry from a point north of Buckhorn Dry Lake (normally east of Rosamond Blvd.’s intersection with Rosamond Dry Lake) at 3,800' MSL offset midway between Flyby Line and the runway. Call “45 to initial” over Rosamond Blvd. Call “initial” north of Buckhorn Dry Lake abeam the bend in Rosamond Blvd. This point is five (5) NM from the end of the runway. Break right abeam the approach end of the runway unless otherwise instructed by tower.

11.6.4.2. Rwy 22. Enter in a right-hand 45o turn to initial entry from a point over the east edge of Rogers Dry Lake (normally Hwy. 58 west of the mines) at 3,800' MSL offset midway between Flyby Line and runway. Call "45 to initial" over Hwy. 58. Call “initial” over the east shore of Rogers Dry Lake. This point is five (5) NM from the end of the runway. Break left abeam the approach end of the runway unless otherwise instructed by tower.

11.6.5. Conventional Traffic Pattern:

11.6.5.1. Rwy 4. Enter downwind at the west shore of Rogers Dry Lake at 3,300' MSL parallel to Rwy 4.

11.6.5.2. Rwy 22. Enter downwind over the west shore of Rogers Dry Lake at 3,300' MSL parallel to Rwy 22.

11.6.6. Closed Traffic Pattern: State type landing with the request for closed traffic.

11.6.6.1. High performance aircraft (e.g. fighter types) fly closed patterns at 3,800 MSL. Other aircraft (e.g. transports, tankers, etc.) fly at 3,300' MSL. These altitudes apply while flying ground track for either the overhead or rectangular pattern.

11.6.6.2. Aircrews shall request or the tower may initiate approval for closed traffic.

11.6.6.3. Closed Traffic - Unless otherwise instructed, aircrews will initiate the turn to downwind upon receipt of Tower approval. If unable due to aircraft configuration, speed, or altitude, advise Tower when you will initiate turn. Maintain at or below 3,300’ MSL until initiating turn to downwind. Use caution to avoid conventional pattern at South Base.

11.6.6.4. Extended Closed Traffic - Initiate turn to downwind one mile past the departure end of the runway after receipt of Tower approval. Maintain at or below 3,300’ MSL until initiating turn to downwind.

11.6.7. Straight-ins, Rwy 4/22. Straight-in approaches are authorized for Rwy 4 and 22.

11.6.7.1. Reduce speed to 250 KIAS for straight-in approaches not later than five (5) NM from the runway.

11.6.7.2. Report Buckhorn Lake inbound for Rwy 4 or East Shore inbound for Rwy 22.

11.6.8. South Re-entries to Rwy 4/22. State type pattern to follow with the request for the South Reentry. Fly south reentry downwind parallel to, and southeast of the runway. Shorten or lengthen patterns when authorized by tower (Fig 11-3).

11.6.8.1. South Reentry Straight-ins:

11.6.8.1.1. Rwy 4. Not authorized when Alpha Corridor is active. Climb to 4,300' MSL and proceed outbound to the south shore of Buckhorn Lake. Abeam Buckhorn, scan for traffic on initial, initiate descent to 3,300' MSL, and turn base leg. Cross abeam bend-in-the-road, on final, at or below 3,300' MSL.

11.6.8.1.2. Rwy 22. Not authorized when south DAGRAG pattern is active. Enter the south reentry downwind by using the extended closed climbout. Climb to 4,300' MSL, remain north of PIRA/Alpha Corridor, and proceed outbound toward Leuhman Ridge. Initiate descent abeam Lakebed Rwy 30. After passing east lake shore, turn base leg, and continue descent to 3,300' MSL. Cross east lake shore, on final, at or below 3,300' MSL.

Note: For a practice approach, advise Tower of your intention to proceed outside the TACAN and request a climb to 4,500’ MSL abeam Lakebed Rwy 30. Pilots extending beyond the East Lakeshore shall use SEE and AVOID principles to resequence themselves into the straight-in pattern. Those pilots requiring to extend beyond the AFRL shall advise tower of intentions to change frequencies and contact SPORT.

11.6.8.2. South Reentry Overheads:

11.6.8.2.1. Rwy 4. Not authorized when Alpha Corridor is active. Enter south reentry downwind by using extended closed climbout. Climb to 4,300' MSL and proceed outbound to the south shore of Buckhorn Lake. After passing Lancaster Blvd., scan for traffic on initial, initiate descent to 3,800' MSL, and turn 90o to initial. Roll out wings level for a second traffic search before turning the 45-to-initial. Cross Lancaster Blvd. at 3,800' MSL.

11.6.8.2.2. Rwy 22. Not authorized when south DAGRAG pattern is active. Enter south reentry downwind by using the extended closed climbout. Climb to 4,300' MSL, remain north of PIRA/Alpha Corridor, and proceed outbound towards Leuhman Ridge. Scan for traffic on initial, initiate descent to 3,800' MSL abeam Lakebed Rwy 30. Crossing east lake shore outbound, turn 90o to initial. Roll out wings level for a traffic search before turning 45-to-initial. Cross east lakeshore at 3,800' MSL.

11.6.9. North reentries to Rwy 4/22. Shorten or lengthen patterns when authorized by tower.

11.6.9.1. North Reentry Straight In:

11.6.9.1.1. Rwy 4. Climb to 3,800’ MSL, and enter downwind north of North Base. Remain north of the housing area and hospital. Turn base to set up for a five (5) mile final. Scan for traffic flying overhead initial and then initiate descent to 3,300’ MSL. Do not initiate turn to final until reaching 3,300’ MSL.

11.6.9.1.2. Rwy 22. Climb to 3,800’ MSL, turn northbound avoiding the hospital and housing area. Enter downwind and proceed outbound on a track of 045½ to remain north of North Base. Turn base at the intersection of the extended centerline of Lakebed Rwy 18 and Hwy 58. Search for traffic flying overhead initial and then initiate descent to 3,300’ MSL. Do not initiate turn to final until reaching 3,300’ MSL.

11.6.9.2. North Reentry Overhead:

11.6.9.2.1. Rwy 4. Climb to 3,800’ MSL, and enter downwind north of North Base. Remain north of the housing area and hospital. Turn base and then 45 to initial so as to roll out on initial at least three (3) miles from the runway.

11.6.9.2.2. Rwy 22. Climb to 3,800’ MSL, turn northbound avoiding the hospital and the housing area. Enter downwind and proceed outbound on a track of 045× to remain north of North Base. Turn base at the intersection of the extended centerline of Lakebed Rwy 18 and Hwy. 58 and then 45 to initial so as to roll out on initial at least three (3) miles from the runway.

11.7. Overhead/Straight-In Simulated Flame-Out/Low Lift Over Drag (Low L/D) Approach Procedures.

11.7.1. This area defines and standardizes approval and execution procedures to ensure safe and effective Overhead and Straight-In SFO approaches and Low L/D (Shuttle and Lifting Body) approaches. Shuttle and Lifting Body approaches are not authorized when SPORT is closed.

11.7.2. All of the following conditions must be met in order to conduct Overhead and/or Straight-In SFO approaches and Low L/D Approaches.

11.7.2.1. Between the hours of sunrise and sunset.

11.7.2.2. Cloud ceiling at least 1,000’ above the highest altitude flown on the approach and visibility at least five (5) miles.

11.7.2.3. SPORT must be operational (normally 0600-2000L, Monday-Friday) for Low L/D approaches.

11.7.2.4. Aircraft temporarily assigned to and using AFFTC callsigns may conduct approaches IAW these procedures. If flying aircraft different from the host flying unit, aircraft characteristics (speeds, altitudes, special handling requirements) must be provided to the tower at least 72 hours in advance for controller training.

11.7.2.5. Lakebed Spin Area is cold.

11.7.3. General Procedures:

11.7.3.1. Approaches may be disapproved by SPORT or the Control Tower because of traffic or other reasons before the start of the approach.

11.7.3.2. The pilot provides the following information to SPORT when requesting an SFO or Low L/D approach as soon as possible upon RTB:

11.7.3.2.1. Identification.

11.7.3.2.2. Aircraft type.

11.7.3.2.3. Approach Altitude (altitude at which approach will commence).

11.7.3.2.4. Planned approach and runway requested.

11.7.3.2.5. Intentions following approach.

11.7.3.3. The Control Tower will issue traffic information to aircraft regarding other aircraft in radio communication with or visible to tower controllers which are operating within or adjacent to the approach maneuvering area.

11.7.3.4. Aircraft will inform tower of on-the-go intentions no later than "Low Key" for Overhead SFOs or "High Final" for all others.

11.7.3.5. Aircraft conducting successive Straight-In SFO or Low L/D approaches will be sent back to SPORT for re-sequencing, unless otherwise instructed.

11.7.3.6. If the Tower controller has not established visual contact or DBRITE radar position correlation prior to the aircraft reaching "Low Key" for Overhead SFOs or "High Final", breakout instructions will be issued and the pilot will terminate the approach.

Note: At the Tower watch supervisor's discretion, if an aircraft executing the approach is the only aircraft in the pattern and the potential for conflicting with other traffic does not exist, the controller may permit the pilot to continue the approach through landing, low approach, etc. even if visual contact/radar position correlation is not established IAW "not in sight" procedures as defined by air traffic control.

11.7.4. Available Landing Surfaces:

11.7.4.1. Main Base Rwy 4/22.

11.7.4.2. "Green" Lakebed Runways. Low approaches to Lakebed Rwy 15 must be terminated and go-around initiated no later than the intersection of Lakebed Rwy 5/23 and a right turnout will be executed prior to the tower fly-by line unless otherwise coordinated with tower.

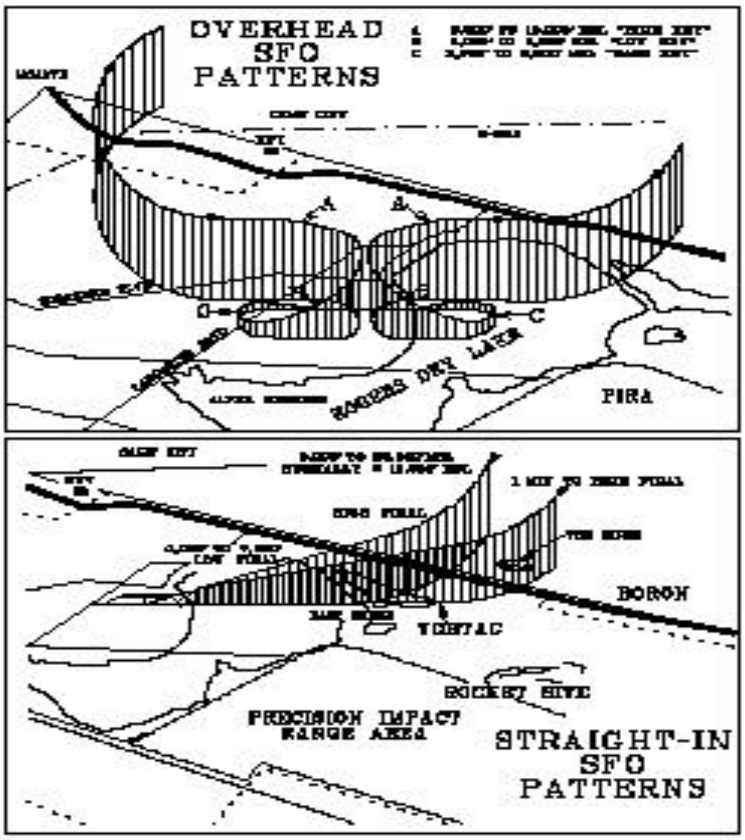
11.7.4.3. Low approaches may be made to green/black lakebed runways, but approaches to yellow or red lakebed runways must have specific 412 OG/CC approval.

11.7.5. Overhead SFO Approaches (Fig 11-4).

11.7.5.1. Description:

11.7.5.1.1. "High Key" will normally be flown between 5,000' and 15,000' MSL. Aircraft shall request specific "High Key" altitude, and coordinate any deviations from this "High Key" altitude with the appropriate controlling agency.

Figure 11.4. SFO Patterns.



11.7.5.1.2. "Low Key" will normally be flown between 4,000' and 9,000' MSL. Deviations from these "Low Key" altitudes shall be coordinated with the appropriate controlling agency.

11.7.5.1.3. Aircraft airspeed will normally be 180-230 (T-39 155-170) KIAS while in the Overhead SFO pattern, slowing to a target speed of 160-180 (T-39 100-140) KIAS over the landing threshold.

11.7.5.2. Execution and Approval Procedures.

11.7.5.2.1. Upon receiving Control Tower approval, SPORT will instruct aircraft to report one (1) minute to "High Key"; this instruction constitutes approval for aircraft to proceed to "High Key."

11.7.5.2.2. Aircraft will report one (1) minute prior to "High Key" and approach altitude with the Control Tower. Aircraft will next report "High Key." Control Tower instruction to report "Low Key" constitutes approval to proceed to "Low Key"; without these instructions, the aircraft will orbit or hold at "High Key" until instructed to report "Low Key."

11.7.5.2.3. The Control Tower will issue landing clearance or alternate instructions when the aircraft reaches "Low Key."

11.7.5.2.4. Aircraft requiring successive Overhead SFO approaches will request a northbound turn upon the completion of the approach to Main Base Rwy 4/22 (right turn for Rwy 22 and left turn for Rwy 4) or request a preferred turn-out of traffic upon completion of an approach

to a lakebed runway. The aircraft will turn out and climb to "High Key" IAW paragraph 11.7.5.1.1 only after receiving Control Tower approval of the requested turn-out or a different tower-directed turn-out.

11.7.5.2.5. Aircraft conducting successive Overhead SFO approaches will remain on Control Tower frequency unless otherwise instructed.

11.7.5.3. Holding: Aircraft will orbit or hold over the airfield at "High Key" or as directed by the Control Tower. Aircraft will remain within the lateral confines of the Class D Airspace.

11.7.5.4. Termination/Breakout Procedures: The Control Tower is authorized to direct termination of Overhead SFO approaches at any time.

11.7.6. Straight-In SFO Approach (Fig 11-4).

11.7.6.1. Description:

11.7.6.1.1. The Straight-In SFO approach will be flown as an extension of the runway centerline, with aircraft being aligned with the runway centerline +/- five (5)½.

11.7.6.1.2. "High Final" is between 9,000' and 12,000' MSL over East Lakeshore (Buckhorn Dry Lake for Rwy 4/Rogers Dry Lake for Rwy 22).

11.7.6.1.3. Aircraft airspeed will normally be 180-230 (T-39 155-170) KIAS on final for the Straight-In SFO, slowing to a target speed of 160-180 (T-39 100-140) KIAS over the landing threshold.

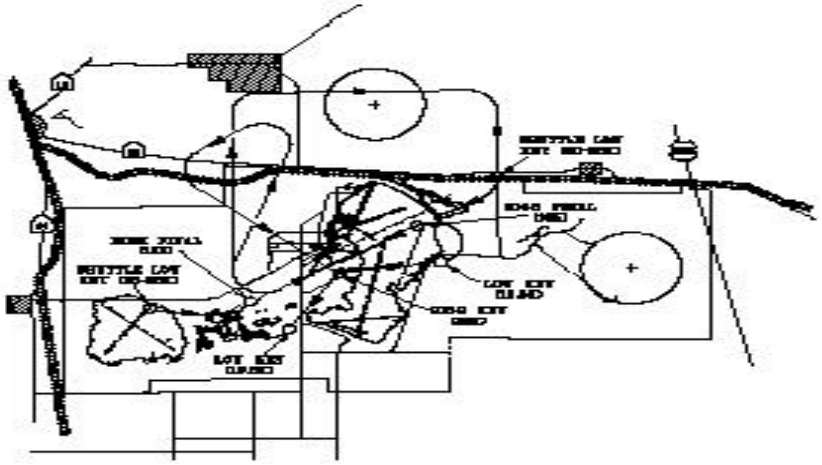
11.7.6.2. Straight-In SFO Procedures.

11.7.6.2.1. Aircraft will report one (1) minute prior to "High Final" and approach altitude with the Control Tower. Only after receiving Control Tower instruction to continue the approach from the one (1) minute to "High Final" position, will aircraft continue the approach and report "High Final." If Control Tower instruction to continue the approach is not received by one (1) minute prior to "High Final" position, aircraft will request "High Key" position or request to orbit at "High Final" position. At "High Final" position, report "Aircraft Callsign, Position, High Final, Altitude."

11.7.6.2.2. The Control Tower will issue landing clearance or alternate instructions when the aircraft reaches "High Final." If aircraft is unable to report "High Final" or does not receive landing clearance from Control Tower, the aircraft executes a go-around and advises tower as soon as possible of intentions. The aircraft will not descend below 5,000' MSL.

11.7.6.2.3. Aircraft requiring successive Straight-In SFO approaches may request a south re-entry or a northbound turn upon the completion of the approach to Main Base Rwy 4/22 (right turn for Rwy 22 and left turn for Rwy 4) or request a preferred turn-out of traffic upon completion of an approach to a lakebed runway.

Figure 11.5. TPS Low L/D Approaches.



11.7.6.3. Holding: Aircraft will orbit or hold at "High Final" position or as directed by the Control Tower.

11.7.6.4. Termination/Breakout Procedures: The Control Tower is authorized to direct termination of Straight-In SFO approaches at any time.

11.7.7. Simulated Shuttle Approaches (Fig 11-5).

11.7.7.1. Description:

11.7.7.1.1. The Simulated Shuttle pattern begins at Low Key over Highway 58 or Rosamond Dry Lake between 20,000' and 28,000' MSL (depending upon fuel load).

11.7.7.1.2. High Final is between 9,000' and 12,000' MSL over East Lakeshore (Buckhorn Dry Lake for Rwy 4/Rogers Dry Lake for Rwy 22).

11.7.7.1.3. Aircraft airspeed will normally be 260 – 300 KIAS on final for Shuttle approaches, slowing to a target speed of 180 – 220 KIAS over landing threshold. The entire approach takes approximately two (2) minutes from "Low Key".

11.7.7.2. Simulated Shuttle Approach Procedures. (Fig 11-5)

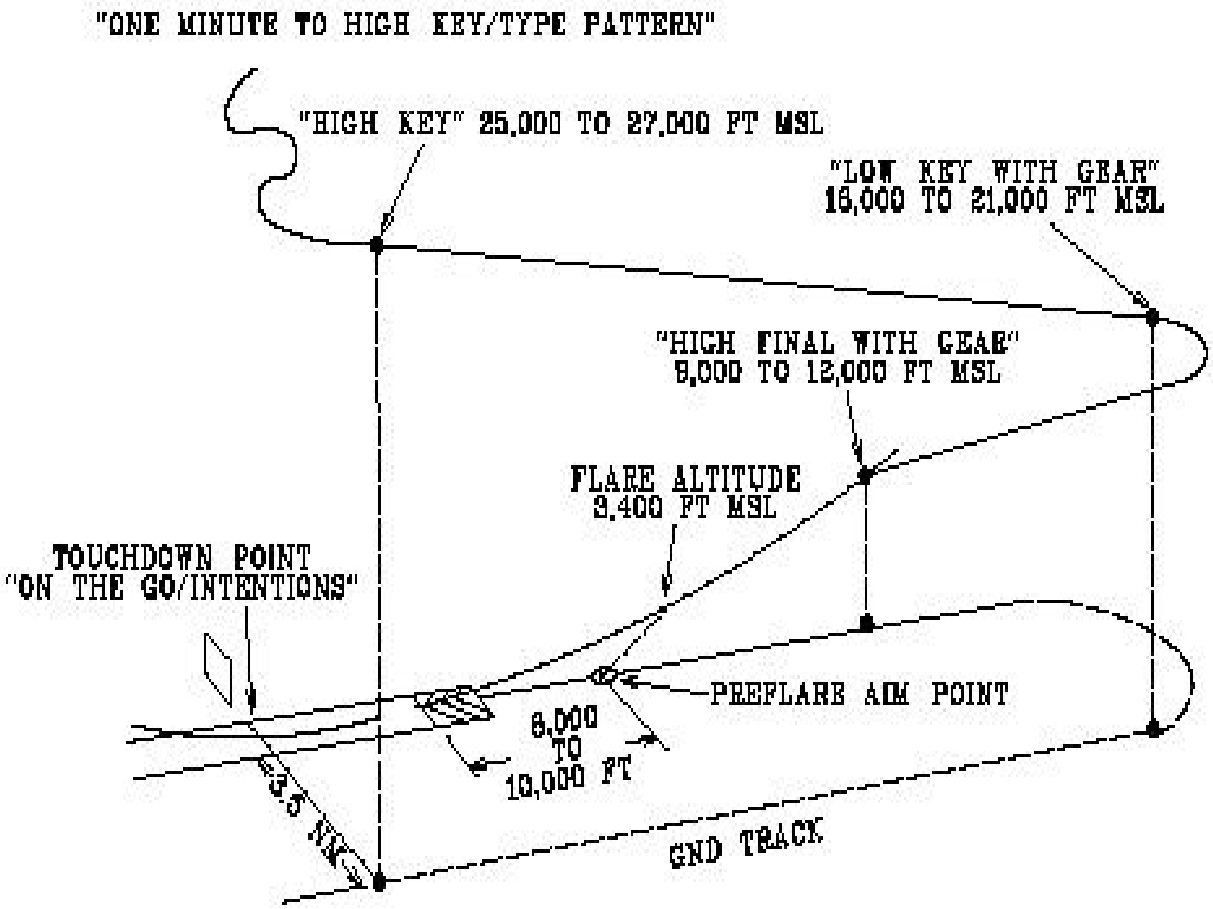
11.7.7.2.1. Aircraft will report one (1) minute prior to "Low Key" and approach altitude with the Control Tower. Aircraft will next report "Low Key." Control Tower instruction to report "High Final" constitutes approval to proceed to "High Final"; without these instructions, the aircraft will orbit or hold at "Low Key" until instructed to report "High Final." At "High Final" position, report "Aircraft Callsign, Position, High Final, Gear Check."

11.7.7.2.2. The Control Tower will issue landing clearance or alternate instructions when the aircraft reaches "High Final." If aircraft is unable to report "High Final" or does not receive landing clearance from Control Tower, the aircraft executes a go-around and advises tower as soon as possible of intentions. The aircraft will not descend below 5,000' MSL.

11.7.7.2.3. Aircraft requiring successive Shuttle approaches will request a northbound turn upon the completion of the approach to Main Base Rwy 4/22 (right turn for Rwy 22 and left turn for Rwy 4).

11.7.7.3. Holding: Aircraft will orbit or hold at "Low Key" position or as directed by the Control Tower. Termination/Breakout Procedures: The Control Tower is authorized to direct termination of Simulated Shuttle approaches at any time.

Figure 11.6. Typical Low L/D Profile.



11.7.8. Low Lifting Body (Low L/D) Approaches (Fig 11-5 & 11-6).

11.7.8.1. Description:

11.7.8.1.1. The X-24B Low Lifting Body approach has a High Key over South Base between 24,000' and 27,000' MSL and Low Key at 19,500' MSL.

11.7.8.1.2. High Final is between 9,000' and 12,000' MSL over East Lakeshore (Buckhorn Dry Lake for Rwy 4/Rogers Dry Lake for Rwy 22).

11.7.8.1.3. Aircraft airspeed will normally be 260 - 300 KIAS on final for Lifting Body approaches, slowing to a target speed of 180 - 220 KIAS over the landing threshold. The entire approach takes approximately two (2) minutes from “High Key.”

11.7.8.2. Low L/D Procedures.

11.7.8.2.1. Aircraft will report one (1) minute prior to “High Key” and approach altitude with the Control Tower. Aircraft will next report “High Key.” Control Tower instruction to report “Low Key” constitutes approval to proceed to “Low Key”; without these instructions, the aircraft will orbit or hold at “High Key” until instructed to report “Low Key.”

11.7.8.2.2. The Control Tower will issue a landing clearance or alternate instructions when the aircraft reaches “Low Key.” If aircraft is unable to report “High Final” or does not receive landing clearance from Control Tower , the aircraft executes a go-around and advises tower as soon as possible of intentions. The aircraft will not descend below 5,000’ MSL.

11.7.8.2.3. Aircraft requiring successive Low L/D approaches will request a northbound turn upon the completion of the approach to Main Base Rwy 4/22 (right turn for Rwy 22 and left turn for Rwy 4).

11.7.8.3. Holding: Aircraft will orbit or hold over the airfield at “High Key” or as directed by the Control Tower.

11.7.8.4. Termination/Breakout Procedures: The Control Tower is authorized to direct termination of Lifting Body L/D approaches at any time.

11.8. North Base And South Base Patterns. (Fig 11-3)

11.8.1. North Base Traffic Pattern.

11.8.1.1. Conventional/North Base Rwy 6/24. A 45o entry to a downwind leg north and parallel to Rwy 6/24. Traffic pattern altitude is 3,300' MSL.

11.8.2. North Base Operations.

11.8.2.1. Edwards tower provides advisory services only. Since the runway environment is not visible from the tower, aircrews are responsible to provide separation from other aircraft.

11.8.2.2. Departures:

11.8.2.2.1. Taxiing: Prior to taxi, obtain Main Base Rwy in use, wind, and altimeter from the ATIS (269.9 or 116.4). North Base Rwy in use is determined by Rwy in use at Main Base (i.e. Main Base Rwy 22, North Base Rwy 24). Contact Ground Control when ready to taxi.

11.8.2.2.2. Departure: Advise Tower prior to entering the runway. Aircraft will be instructed to report airborne (a takeoff clearance will not be issued) and will be afforded traffic advisories.

11.8.2.3. Arrivals:

11.8.2.3.1. Prior to entering Class D Airspace, contact tower for landing instructions with call sign and position. Tower transmits main base wind, altimeter, and desired reporting point. Aircraft will be afforded traffic advisories and instructed to report off the runway.

11.8.2.4. The Tower normally operates runway lighting. When Tower is closed, agencies requiring lighting must make prior arrangements with Security Police for access to the lighting controls. Controls are located at the North Base gate that is locked by Security Police each evening.

11.8.2.4.1. North Base lights will only be operated for an arrival or departure.

11.8.3. South Base Pattern:

11.8.3.1. Conventional South Base Rwy 6/24. A 45½ entry to a downwind leg. Pattern altitude 2,800’ MSL.

11.8.3.2. Overhead patterns are not authorized.

11.8.4. South Base Operations.

11.8.4.1. Edwards tower provides advisory only services to South Base. Since the runway environment is not visible from the tower, aircrews are responsible to provide separation from other aircraft. Normally, Aero Club aircraft use the Lancaster arrival and departure routes to South Base. If the Alpha Corridor is active, use the Rosamond or Alternate Highway 58 East route.

11.8.4.2. Departures:

11.8.4.2.1. Taxiing: Prior to taxi, obtain Rwy in use at Main Base, wind, and altimeter from the ATIS (269.9 or 116.4). South Base Rwy in use is determined by Rwy in use at Main Base (i.e. Main Base Rwy 22, North Base Rwy 24). Contact Ground Control when ready to taxi.

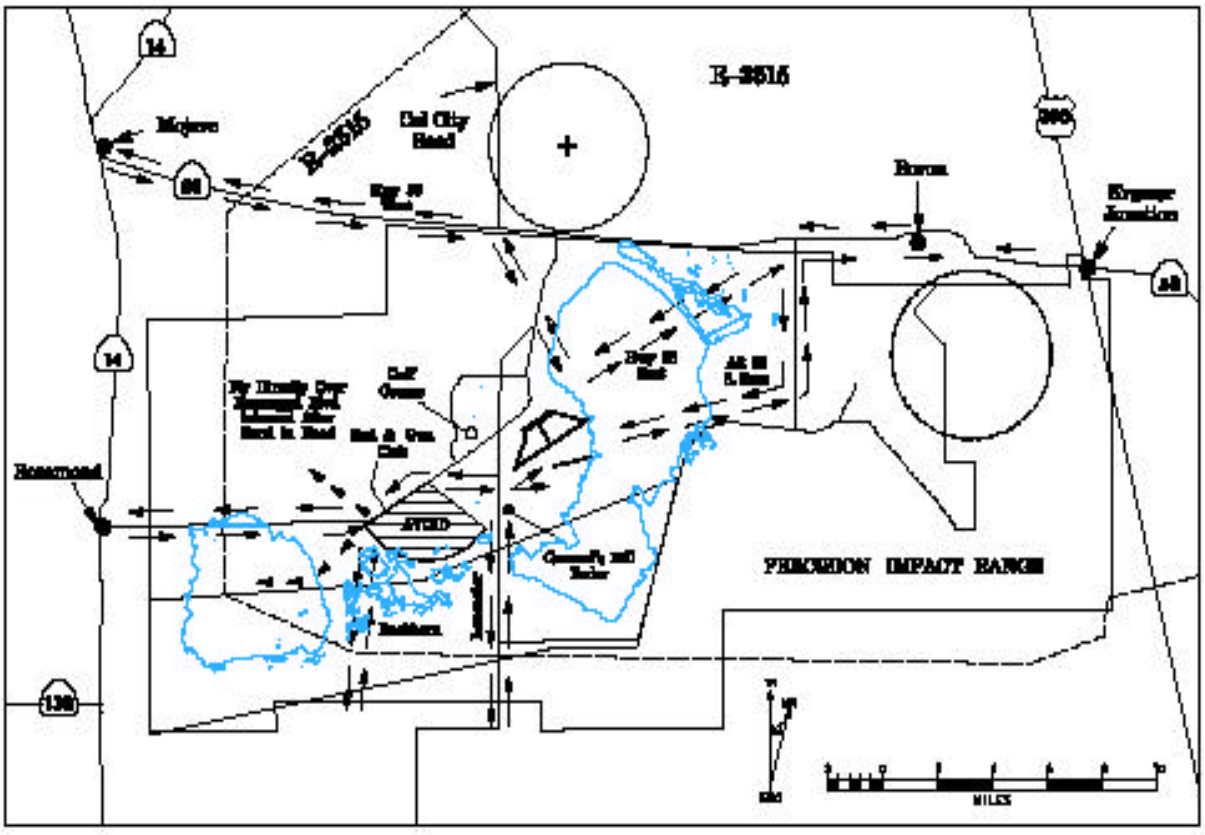
11.8.4.2.2. Departure: Advise Tower prior to entering the runway. Aircraft will be instructed to report airborne (a takeoff clearance will not be issued) and will be afforded traffic advisories. Tower approves a departure from the pattern and specifies the route to fly consistent with the status of active areas.

11.8.4.3. Arrivals: Prior to entering Class D Airspace, contact tower for landing instructions with call sign and position. Aircraft will be afforded traffic advisories and instructed to report off the runway.

11.8.4.3.1. Tower issues South Base runway in use, main base wind, altimeter, known traffic, issues route of flight consistent with the status of active areas, and specifies an appropriate reporting point (except when SPORT is open): Lancaster arrival - before entering downwind; Rosamond arrival - bend in the road. Obtain tower approval before crossing the extended centerline of Rwy 4 main base. Cross at least three (3) miles from the approach end of Rwy 4, below 500' AGL.

11.9. Light Aircraft Arrival/Departure Routes. (Fig 11-7)

Figure 11.7. Helicopter/Light Aircraft Arrival/Departure Routes.



11.9.1. Light aircraft are authorized the following low altitude arrival/departure corridors during VMC. Before entering R-2515, contact SPORT (272.0 or 132.75) for route approval and flight following. When Tower advises on departure, contact SPORT for flight following and traffic advisories. When SPORT is unavailable, remain in contact with Edwards tower.

Note: The Buckhorn, Lancaster, and direct north/south arrival/departure routes are not authorized when the Alpha Corridor is active. Departures and arrivals to/from the east are not authorized when the PIRA is active.

11.9.2. Rosamond Arrival. Contact SPORT one (1) NM east of Rosamond. Proceed east remaining directly over Rosamond Blvd. Maintain 3,300' MSL until past Rosamond Dry Lake, then descend and maintain 2,800' MSL. Contact tower at the bend in Rosamond Blvd. Continue to track directly over Rosamond Blvd. until one half (1/2) mile east of the Rod and Gun Club/Small Arms Range then:.

Caution: Be alert for Buckhorn arrivals/departures.

11.9.2.1. Main Base Arrivals: Continue to the Golf Course. Route ends abeam Golf Course. Follow tower instructions to applicable runway pattern (maintain 2,800' MSL).

11.9.2.2. South Base Arrivals: After passing Small Arms Range, turn right heading 095½ to Generals' Hill for transition to applicable runway pattern maintaining 2,800' MSL. Advise Edwards Tower prior to crossing extended centerline of Rwy 4/22.

11.9.3. Rosamond Departure.

11.9.3.1. Main Base. Fly heading 270o at 2,800' MSL to the Golf Course then:

11.9.3.2. South Base. Fly heading 235o at 2,800' MSL. Crossing Lancaster Blvd., turn right heading 275o to intercept Rosamond Blvd. then:

11.9.3.3. Maintain one quarter (1/4) NM north of Rosamond Blvd. Contact SPORT abeam Golf Course. At Bend-in-the-road climb to 3,300' MSL. Continue to Rosamond.

Caution: Be alert for model airplanes north of Rosamond Blvd. on Rosamond Dry Lake.

11.9.4. Buckhorn Arrival. Altitude 2,800' MSL. Pilots shall not fly north of Avenue E (last major east/west surface street) without clearance from either SPORT or Tower. When cleared, proceed inbound one half (1/2) NM east of the Rosamond Dry Lake's east shoreline heading 360½ to intercept Rosamond Blvd. and fly east following the Rosamond arrival procedures for South or Main Base.

Caution: Be alert for Rosamond arrivals approaching Bend-in-the-Road.

11.9.5. Buckhorn Departure. Follow Rosamond Departure procedures from Main Base or South base to Bend-in-the-Road. At the bend in Rosamond Blvd., fly heading 180½ over the east shore of Rosamond Dry Lake until clear of the restricted area.

Caution: Be alert for Rosamond arrivals at Bend-in-the-Road.

Note: Pilots flying the Buckhorn arrival or departure route are reminded to use caution when flying these routes due to the close proximity of the Small Arms Range (it is the pilot's responsibility to completely avoid overflying the Small Arms Range).

11.9.6. Lancaster Blvd. Arrival. Altitude 2,800' MSL. Pilots shall not fly north of Avenue E (last major east/west surface street prior to turning northbound on 120th) without clearance from either SPORT or Tower. When cleared, proceed within one quarter (1/4) NM east of Lancaster Blvd. until abeam General's Hill Radar to enter pattern at South or Main Base. Contact tower when instructed.

11.9.7. Lancaster Blvd. Departure. Departures from either Main or South Base will fly west of General's Hill to proceed outbound within one quarter (1/4) NM west of Lancaster Blvd. until clear of restricted area. Contact SPORT crossing or joining Lancaster Blvd.

11.9.8. Hwy. 58 West Arrival. (Not authorized for South Base. South Base use Rosamond Arrival.) Altitude 2,800' MSL; Contact SPORT at Mojave; Fly east remaining within one quarter (1/4) NM south of Hwy. 58 until intersection of Hwy. 58 and road to California City, contact tower when instructed. Fly heading 140o to north end of Taxiway E (Contractors' Row) for transition to applicable runway pattern.

11.9.9. Hwy. 58 West Departure. (Not authorized for South Base. South Base use Rosamond Departure.) From the north end of Contractors' Row fly heading 320o to intercept Hwy. 58. Proceed west within one quarter (1/4) NM north of Hwy. 58 maintaining 2,800' MSL. Contact SPORT joining Hwy. 58.

11.9.10. Hwy. 58 East Arrival. (Not authorized for South Base). Altitude 2,800' MSL. Contact SPORT at the intersection of U.S. 395 and Hwy. 58 (Kramer Junction/Four Corners). Proceed west within one quarter (1/4) NM north of Hwy. 58 until abeam Borax Mines settling ponds, then fly heading 230½ to intercept or maintain parallel track with Lakebed Rwy 23. Do not go beyond one half (1/2) NM south of Lakebed Rwy 23. At mid-lakebed, transition to applicable runway pattern (maintain 2,800' MSL). Contact tower when instructed.

11.9.11. Hwy. 58 East Departure. (Not authorized for South Base). Fly outbound track parallel to Lakebed Rwy 5, remaining within one half (1/2) NM south, to intercept Hwy. 58. Remain within one quarter (1/4) NM south of Hwy. 58 east to U.S. 395, maintaining 2,800' MSL. Contact SPORT turning eastbound along Hwy. 58.

11.9.12. Alternate Hwy. 58 East Departure/Arrival for South Base when Lancaster and Buckhorn routes are unavailable).

11.9.12.1. Departure: Altitude 2,800' MSL. Fly east from South Base on Rwy 6/24 extended centerline. At east shore of Rogers Dry Lakebed, remain north of bend in Mercury Blvd., intercept north/south road (Rich Rd) west of Leuhman Ridge. Proceed north, maintaining right side of road until intercepting Hwy. 58. Fly one quarter (1/4) NM south of Hwy. 58. Contact SPORT joining Hwy. 58.

11.9.12.2. Arrival: Follow Hwy. 58 East arrival procedures until abeam Borax mines settling ponds, then fly southbound keeping to right of Rich Rd. Turn west abeam the Det 7 AFRL gate to the east and the 2,450' knoll on the drylake shoreline (approx. one and a half (1 1/2) miles north of Mercury Blvd.). Remain one half (1/2) mile north of both the bend in Mercury Blvd. and the extended centerline of South Base Rwy 6/24. Contact tower when instructed.

11.9.13. Northwest. Departure/arrival altitude 2,800' MSL. Use the same route from the Main Base to Hwy. 58 as the Hwy. 58 West departure/arrival (north end of the northwest departure/arrival respectively terminates and commences at Hwy. 58). This route is for helicopter operations requiring transit to and from Main Base and Hwy. 58.

11.10. Lakebed Operations.

11.10.1. Center Scheduling (412 OSS/OSCS) is responsible for scheduling proposed operations on the lakebed and for coordinating with 412 OSS/OSAM on all projects desiring use of the lakebed, including Buckhorn and Rosamond Dry Lakes. 412 OSS/OSAM issues advisories to tower and CONFORM on lakebed conditions whenever an inspection is complete or the operational status changes (work crews or weather).

11.10.2. Restrict practice lakebed landings to a crosswind limit of 50% of the flight manual. This does not apply to lakebed landings performed for flight safety.

11.10.3. Touch-and-go landings to lakebed runways are not authorized unless in performance of an approved AFFTC test plan. Low approaches to green and green/black lakebed runways may be made when authorized by tower. The Compass Rose, 4,000' in diameter with headings marked every 45½, may be used in an emergency.

11.10.4. Use of the lakebed for full stop landings is authorized for F-16 aircraft. Lakebed landings are generally limited to emergency recoveries, crosswinds out of limits, or main runway closures. Lakebed landings for proficiency are authorized but require operations officer approval. If a lakebed landing is pre-planned for proficiency, notify maintenance the day prior to take-off. After landing, the F-16 can continue taxiing but must leave the throttle in idle to reduce the probability of FOD ingestion. During taxi the pilot can select EEC - OFF or SEC to increase idle thrust. If the aircraft comes to a stop on the lakebed shut down the engine immediately and the aircraft will be towed off the lakebed. Pilots will check the status of lakebed taxiways prior to taxing back to park. If a FOD hazard exists, shutdown on the lakebed and have the aircraft towed.

11.11. NASA Gulfstream II (G-2) Operations.

11.11.1. NASA has an ongoing requirement for its orbiter flight crews to practice space shuttle oriented landing operations at Edwards. These operations use specially modified G-2 aircraft with the left side of the cockpit modified to include all Shuttle flight instruments and controls. When the simulation is started the Shuttle Training Aircraft (STA) responds to all pilot control inputs the same as the Shuttle. While simulating the Shuttle approach, the G-2 has reduced capability for traffic avoidance maneuvering, has reduced visibility to simulate the Shuttle pilot's field of view, and has extensive crew coordination activities on-going during the approach.

11.11.2. STA training activities are generally scheduled during one weekend per month to minimize traffic conflicts and operate in relatively sterile airspace. Edwards AFB will be "Official Business Only" (OBO) and all scheduled AFFTC sorties will be mission essential. During the training sessions, all other aircraft are restricted to full stop landings only, unless required to complete test missions (no proficiency, etc.).

11.11.2.1. Airfield Management will publish an airfield advisory with scheduled times, dates, and runway restrictions (typically for nighttime STA lighting requirements) at least three (3) days prior to STA operations.

11.11.2.2. Once an STA aircraft has begun the Shuttle approach, the STA aircraft has priority over other airborne aircraft and can only alter their approach for emergency/safety-of-flight reasons. Other aircraft can expect delays and should coordinate their requirements well in advance with the Control Tower Watch Supervisor (72049) and STA aircrews when possible.

11.11.2.3. STA operations have priority over Aero Club aircraft and may cause air and/or ground delays due to coordination requirements or flight profiles. Aero Club aircrews should be prepared to delay/cancel/divert if the situation warrants. Multiple South Base operations are not authorized.

11.11.2.4. In the event Aero Club aircraft are NORDO prior to entering the Class D Airspace, they will divert to an authorized location. For solo pilots, the only authorized location is Edwards South Base; all others will divert to another location and telephone the Control Tower Watch Supervisor to check the status of STA flight activity prior to RTB.

11.11.2.4.1. In the event Aero Club aircraft become NORDO after entering the Class D Airspace, they will continue on the Lancaster arrival and enter base leg for the runway in use.

11.11.3. A discrete frequency will be used with SPORT, Edwards' Tower, and the STA's to minimize radio transmissions that distract from shuttle crew coordination tasks during the STA Shuttle simulation profile

Note: Aero Club aircrews must use extreme vigilance for STA aircraft.

11.12. AF Plant 42, Palmdale.

Note: Due to wake turbulence, wing tip vortices, etc., the primary area for heavy aircraft not utilizing Edwards test resources (e.g. proficiency, qualification) is AF Plant 42 in Palmdale.

11.12.1. Touch and go landings are authorized at Palmdale. Use extreme caution for wake turbulence.

11.12.2. Contact Palmdale tower before traffic pattern entry, state intentions, and confirm active runway.

11.12.3. Traffic Pattern:

11.12.3.1. Fly overhead traffic patterns with a right 45o entry to initial five (5) miles from the end of the runway. Overhead traffic pattern altitude is 5,000' MSL or as requested by the pilot. Conventional traffic pattern altitude is 4,500' MSL for heavy jet aircraft. Helicopters and light aircraft (less than 50,000 pounds) use 4,000’ MSL or when lower altitudes are an operational necessity and coordinated with tower.

11.12.4. Noise abatement procedures:

11.12.4.1. Climb to traffic pattern altitude as rapidly as possible after takeoff, touch and go, or missed approach.

11.12.4.2. Rwy 25: turn out of traffic as soon as possible preferably within one half (1/2) mile past the end of the runway. If unable, make turn upon reaching Sierra Hwy. (the four (4) lane road from the end of Rwy 25). If aircraft performance or ATC instructions do not allow this, remain on runway heading until reaching 3,500' MSL (1,000' AGL) and then turn to downwind leg.

11.12.4.3. Fly all downwind legs no further than two (2) miles from the runway.

11.13. Naval Air Warfare Center, China Lake.

11.13.1. Facilities at China Lake are not normally used for transition flying; however, they may be used for practice instrument approaches controlled by JOSHUA. Touch and go landings on the instrument runway following an instrument approach are authorized followed by a mandatory VFR climbout. Obtain specific climbout instructions from China Lake tower or through JOSHUA. China Lake airport is closed every other Friday corresponding to federal civilian paydays.

Chapter 12

EMERGENCIES

12.1. Priority.

12.1.1. An aircraft in distress has the right of way over all other air traffic. Lakebed runways may be used in an emergency regardless of condition; however, if time permits, the Supervisor of Flying (SOF) recommends a landing area commensurate with the type of emergency. The aircraft commander is the ultimate authority for aircraft operation.

12.2. Notification/Communication Procedures For Inflight Emergencies/. Problems.

12.2.1. Aircrew. If time and conditions permit, notify the controlling agency (SPORT/JOSHUA/ Tower) with aircraft identification and type, pilot's desires, nature of emergency, number of people on board, ETA, fuel remaining in time, armament, and any other pertinent information. You may request a single frequency approach from any agency. The common frequency for flight test missions is normally the assigned mission frequency. Non-test aircraft within R-2515 use 308.7, if not on a discrete frequency. The Edwards SOF/technical assistance frequency is 308.7. If conditions permit, inform the SOF on 308.7 of your situation or to request additional assistance.

12.2.2. Tower. Upon emergency notification, activate the primary crash net and relay all known information to the Fire Department, Hospital, Flight Surgeon, and Base Operations. Other agencies (CONFORM, SPORT, etc.) have primary crash net "receive only" capability.

12.2.3. Operations Center. After notification through the secondary crash net, notify the organization having operational control of the aircraft, SOF, 95th Air Base Wing/CC, and 412 OG/CC. The Operations Center arranges for chase aircraft, emergency air refueling, technical consultation, etc., as deemed appropriate by the squadron duty officer, or if requested by the organization, SOF, or aircrew.

12.2.4. SOF. Contacts the proper AFFTC flying organization for in-flight problems or any emergency when time permits. The flying organization commander/authorized representative may relieve the SOF of the responsibility for providing technical assistance to the aircrew. If technical assistance is not available from the flying organization involved, the SOF provides technical assistance (if requested by the pilot) to the extent of their capability.

12.2.5. Flying Organization. The commander, contractor, or authorized representative provides only technical assistance upon request. The SOF maintains all other responsibility and authority unless relieved by 412 OG/CC. This does not include Air Traffic Control duties.

12.3. Lost Communication Procedure.

12.3.1. Single aircraft returning to Edwards with two-way radio failure are considered emergencies. Follow radio out procedures published in the Inflight Guide.

12.3.2. Monitor 121.5 or 120.7 on VOR receiver, if installed.

12.3.3. Weather permitting, jet and conventional aircraft will ascertain landing direction prior to entering the traffic pattern by overflying Edwards at or above 6,000' MSL. Enter initial at 3,300' MSL midway between the runway and Tower Flyby Line, rocking wings during daylight or flashing landing lights at night, and break at departure end. Watch tower for light gun signals.

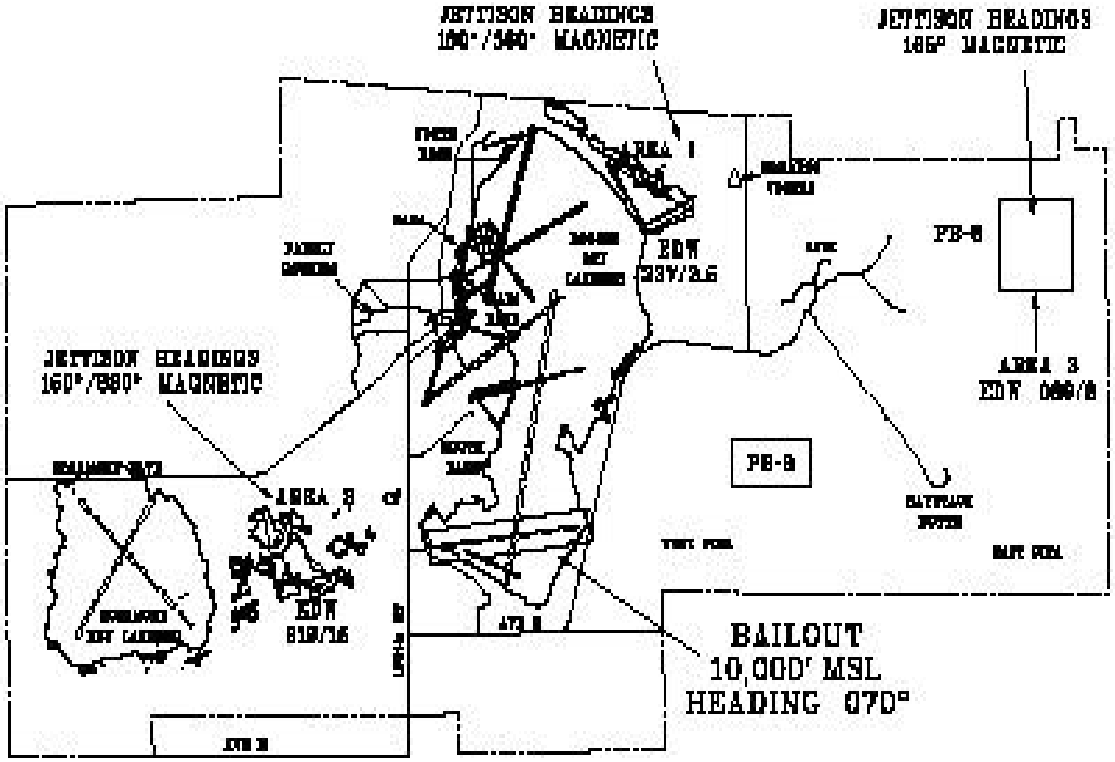
12.3.4. Helicopters at or below 700' AGL will approach the main base complex from the west to determine landing direction. When traffic and ground operations permit, make a straight-in approach to the main ramp or Taxiway Delta with landing/floodlights on. Watch tower for light gun signals.

12.4. Controlled Bailout Area. (Fig 12-1)

12.4.1. Controlled bailouts will be over the PIRA. When situation permits, arrive at the approach end of Lakebed Rwy 7 at 10,000' MSL, heading 070½ until between 250-300 KIAS, or as recommended in the flight manual. Fly straight and level for 1 min, reduce throttles to idle, and eject. Use higher altitudes at pilot's discretion.

12.5. Ordnance/Stores Jettison. (Fig 12-1)

Figure 12.1. Jettison/Bailout Areas.



12.5.1. The PIRA is the primary jettison area for non-explosive ordnance. Normally jettison explosive ordnance on the range being worked. As a last resort, jettison explosive ordnance on PB-13 under SPORT/DOWNFALL control.

12.5.2. Additional non-explosive ordnance jettison areas:

12.5.2.1. Area 1. A triangular area NE of runway centered on EDW 237/2.5. Boundary coordinates are: 34½57’55”N, 117½45’38”W to 34½57’26”N, 117½46’55”W to 34½58’50”N, 117½48’05”W. Suggested jettison heading is 180½ or 360½ magnetic

Note: EDW VORTAC is 4,800 feet NE of Area 1. Use caution jettisoning in Area 1.

12.5.2.2. Area 2. A triangular area SW of the runway centered on the EDW 219/15. Boundary coordinates are: 34½49’45”N, 117½57’40”W to 34½49’35”N, 117½59’25”W to 34½51’17”N, 117½59’52”W. Suggested jettison heading is 150½ or 330½ magnetic.

12.5.2.3. Area 3. A rectangular area in the NE corner of the east range centered on the EDW 089/ 8. Boundary coordinates are: 34½58’05”N, 117½32’45”W to 34½56’05”N, 117½32’45”W to 34½56’05”N, 117½35’10”W to 34½58’05”N, 117½35’10”W. Suggested jettison heading is 165½ magnetic.

Note: Power lines to the east parallel jettison heading. Jettison west of power lines.

12.5.3. Conditions permitting jettison in Areas 1 and 2 at or below 3,300' MSL. Maintain radio contact with tower and SPORT. If no radio contact, USE AREA 3.

12.5.4. Use Area 3 when aircraft control after jettison is in doubt. Jettison altitude is between 5,000' MSL and 6,000' MSL. If possible, have radio contact with tower, and SPORT. If ejection becomes necessary continue heading 165½ magnetic, reduce throttles to idle, and eject.

12.5.5. Inform tower and SPORT of intent to jettison. SPORT will, upon request, provide radar vectors to the area, traffic advisories, and advise when entering and leaving the area but will not tell the pilot when to jettison. Before jettisoning, overfly the area (if weather/time permits) to ensure the area is clear of aircraft and vehicles. The pilot will choose the exact location to jettison.

12.5.6. If SPORT assistance is not available, tower gives only a general description of the area and advises other aircraft to avoid the area.

12.6. Dropped Object.

12.6.1. A dropped object is the inadvertent or unintentional loss of an item from an aircraft. If practical, determine the location of any dropped object and the possibility of danger to civil property. If able, notify the controlling ATC facility and CONFORM. If the possibility of further hazard to civil population exists, discontinue the mission. After landing, notify AFFTC/SE and Command Post.

12.7. Flameouts.

12.7.1. Terminate mission if engine flameout occurs.

12.7.2. Exceptions are:

12.7.2.1. Flameouts during approved tests when flameouts may be expected.

12.7.2.2. T-38s which experience a single engine flameout should use judgment and consider the following:

12.7.2.2.1. No engine parameters exceeded.

12.7.2.2.2. Pilot understands the cause of the flameout e.g. abrupt throttle movement or sideslips in a region of the flight envelope that is susceptible to compressor stall/flameout (Figure 7-1, T-38 Flight Manual).

12.7.2.2.3. Normal airstart accomplished.

12.7.2.2.4. Engine operates normally after restart. If a second flameout occurs to either engine, terminate mission.

12.7.2.3. Handle B-52 flameouts according to the flight manual.

12.7.3. Declaring an emergency is the pilot's option except for dual-engine flameouts; inability to obtain a normal airstart; or exceeding any limitations during the flameout or subsequent airstart attempts.

12.7.4. Write up flameouts specifying which part of the flight envelope the flameout occurred, maneuver being performed, and whether or not a compressor stall was observed. Debrief an engine specialist before leaving Maintenance Debriefing. Notify AFFTC/SEF and 412 OG/CC for Code 3 flameouts (outside of flameout susceptibility area).

12.8. Unsafe Landing Gear Indication.

12.8.1. When fuel and other conditions permit, a pilot experiencing an unsafe landing gear indication will request an inflight check by another aircraft or a tower flyby. Make the flyby along the south edge of the main ramp. In addition to tower personnel, make an attempt to have the SOF or a ground crew familiar with the aircraft to check the aircraft as it passes.

12.8.2. The following procedures apply when landing with an unsafe indication or when the landing gear had to be extended with the emergency system:

12.8.2.1. Consider landing on a lakebed runway, when conditions permit.

12.8.2.2. Advise tower of intentions to stop on the runway for pins. After landing, stop straight ahead and hold until the landing gear lockpins are installed. After maintenance personnel make an inspection and give an appropriate signal, taxi clear of the runway (main runway operation) and accomplish proper technical order procedures. If there is any doubt about gear position, shut down the aircraft and request a tow.

Note: C-135, C-141, and C-18 will follow technical order procedures and may execute normal landing if gear is confirmed locked down.

12.9. Arresting Gear Procedures.

12.9.1. Aircraft emergencies requiring an approach end arrestment can use the China Lake arresting gear, weather conditions and fuel permitting. This guidance does not prevent use of lakebed runways in suitable condition. Lakebed runways are normally a safer option than an approach end arrestment.

12.10. Emergency Recovery Landing Area.

12.10.1. The principal emergency recovery area is Rogers Dry Lake; however, use other available areas dependent on circumstances and conditions. Following are designated AFFTC recovery areas within or next to the local traffic area (Figs 11-1 and 11-2):

12.10.1.1. Rogers Dry Lake - all Lakebed Rwys when operational.

12.10.1.2. Main Base Rwy 4/22.

12.10.1.2.1. The 1,800’ concrete underrun of Rwy 22 is constructed to withstand the same loads as the main runway and is identical in all respects. This underrun is available for emergency use when additional runway length may be required.

12.10.1.3. Rosamond Dry Lake - Lakebed Rwys 11/29 and 2/20 when operational.

12.10.1.4. North Base Rwy 6/24.

12.10.1.5. South Base Rwy 6/24.

12.10.1.5.1. AFFTC assigned fighter/trainer aircraft only are authorized to make an emergency recovery subject to the following restrictions:

12.10.1.5.2. South Base Rwy 6/24 may be used as a last resort in the event the lakebed is RED and main base runway is closed due to the Space Shuttle or a disabled aircraft on the runway, AND an emergency situation precluded a safe recovery at another location.

12.10.1.5.3. Useable runway is 8,000' x 50'. The ultimate load bearing capacity of Rwy 24 is unknown; but the center 50' keel section will support fighter/trainer aircraft.

12.10.1.5.4. After landing, clear the runway. When chocks are available and in place, shutdown engine(s). Taxi no further than absolutely necessary to clear the runway to avoid FOD damage from the deteriorating concrete on the taxiways.

12.10.1.5.5. The availability of this runway as an emergency landing surface does not in any way relieve aircrews of the requirement to bingo out of the area with enough fuel to divert should Rwy 4/22 become closed. This runway only affords aircrews another option prior to ejection.

*****WARNING******

Approaches were flown to this runway. The runway is narrow, giving a false impression or illusion of being higher than you actually are. Aircrews should remain on the load-bearing surface and not run off the approximately 2-inch lip that separates the load-bearing surface from the shoulder.

*****WARNING******

12.11. Hot Brakes. (Fig 5-1)

12.11.1. Air/ground crews experiencing/suspecting hot brakes shall declare an emergency with the Tower, giving aircraft identification, type, and location. Crews will accomplish the appropriate tech order emergency procedures. (Crew safety is paramount. If a fire develops, consider immediate engine shutdown and egress). Normally, pilots should continue to the end of the runway and taxi to the designated hot brake area Park so that the wind will blow any flames/smoke away from the cockpit and help cool the brakes.

Note: If exiting at the center taxiway, the pilot will stop the aircraft after clearing the runway. If past the designated hot brake area, the pilot will taxi to the nearest uncongested area and stop. In either situation, stop the aircraft so the sides of the wheels are not facing any other aircraft in the area.

Note: If hot brakes are discovered after an aircraft arrives in the parking area, the pilot will declare a ground emergency with Edwards Ground and taxi to an uncongested area. The crew chief will notify the flightline expediter of the problem and monitor the aircraft for possible tire/brake fire. The flight line expediter will radio aircraft location to the MOC who will ensure that a ground emergency has been declared.

Note: If a hot brake aircraft blocks the center taxiway, Tower will close the taxiway until notified the danger of a blown tire, etc., has passed.

12.11.2. Tower will declare an emergency whenever they perceive a high-speed abort is in progress and the pilot does not respond or deny an emergency situation.

12.11.3. During all hot brake emergencies, Tower will activate the primary crash phone. This will alert maintenance personnel (Crash Recovery) to proceed with tire puncturing tools for use at the direction of the fire chief.

12.11.4. The aircraft should be checked as soon as it is safe so brake pressure may be released to aid cooling and help prevent fusing. Fire and Crash Rescue personnel will provide standby support during brake cooling.

12.11.5. If the aircraft might vent fuel upon shutdown, ensure fire equipment is in place before shutdown.

12.11.6. All support vehicles except Crash Recovery and Fire and Crash Rescue will remain at least 300 feet from an aircraft with hot brakes.

12.12. Runway Closure Announcements.

12.12.1. During emergencies, which cause runway closures, tower transmits the following on Tower and Ground frequencies:

12.12.2. Broadcast, "Attention all aircraft. Edwards' Rwy (number) is closed (duration, if available). Edwards tower out."

12.12.3. Broadcast, "Attention all aircraft. Edwards' Rwy (number) is open. Edwards tower out."

12.12.4. Relay runway closure to JOSHUA and SPORT.

12.12.5. SPORT makes similar broadcasts on their frequencies.

12.13. Edwards NAVAID Failures.

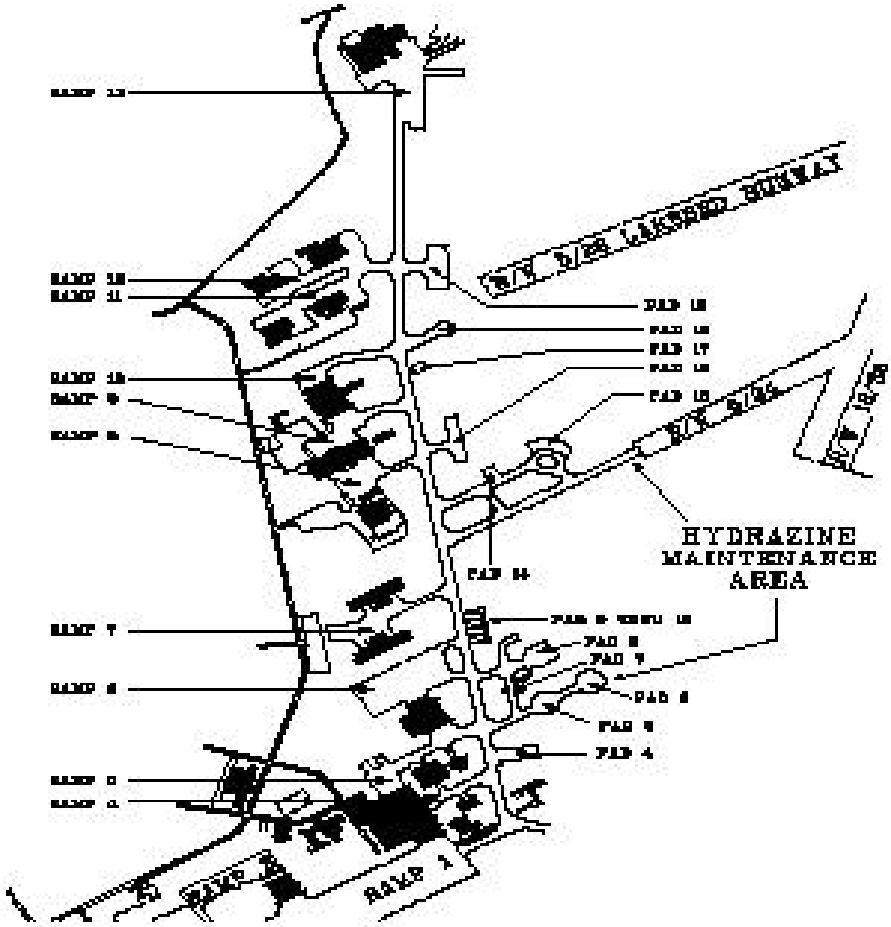
12.13.1. When weather precludes VFR landings at Edwards and NAVAIDs are not available, Palmdale will be used as the primary alternate. For lost communications, follow radio out procedures listed in FLIP. Proceed to Helde Initial Approach Fix (IAF) and make the HI-TACAN or ILS Rwy 25 approach.

12.14. Activated Epu/Hydrazine Leak. (Fig 12-2)

12.14.1. Any EPU activation will be considered toxic until cleared by the hydrazine response team. During any airborne/ground activation of the EPU, appropriate ground agencies will be notified that an EPU has been activated. The emergency aircraft will taxi (if feasible) to the designated hydrazine response areas located on Taxiways A and C (co-located with the hot brake, arm/de-arm areas, Fig 5-1). The Fire Chief will direct the hydrazine response team to determine the EPU status with a "Sniff Check." If hydrazine is detected (dirty) park the aircraft with the left wing into the wind (if possible) and egress with your visor down and mask up. If hydrazine is not detected (clean), egress normally.

Note: If the EPU was activated for routine testing or training (i.e. Airstart Mission) and the sniff check "clean", the aircraft may be taxied to the Hydrazine Maintenance Areas located on Pad 6 or Taxiway Delta.

Figure 12.2. Hydrazine Maintenance Areas.



Chapter 13

RESTRICTIONS

13.1. Maximum Number Of Flights.

13.1.1. Aircrews assigned and attached to AFFTC are restricted to three (3) missions per day. For the purpose of this restriction, a mission terminates when engines are shut down for refueling. 412 OG/CC may grant individual waivers to this restriction. Squadrons whose missions exceed this restriction (e.g. Speckled Trout, ARIA, etc.) must submit to 412 OG/CC, annually, a request for waiver.

13.2. Runway Ground Tests. .

13.2.1. Ground tests with a potential of closing the runway (such as taxi and braking tests) require case-by-case 412 OG/CC approval, if tests are conducted during normal weekday duty hours.

13.2.2. Brake Testing. During brake testing, support vehicles should be pre-positioned on the side of the taxiway and to the inside of any turn the testing aircraft might make when turning off the runway. This will reduce the possibility of a ground incident involving a vehicle if the brakes fail while turning off the runway.

13.3. Formation Takeoffs/Landings.

13.3.1. Formation takeoffs of more than two (2) aircraft are not authorized. Maximum crosswind component for formation takeoff/landing is 15 knots (kts) or less as specified by the aircraft's flight manual.

13.3.2. Make formation takeoffs only with like aircraft configured/modified with similar takeoff performance and characteristics. 412 OG/CC may grant exceptions.

13.4. Maximum Surface Winds For Flying.

13.4.1. Due to the hazards of parachute landings in high winds, ejection seat aircraft will not take off when steady surface winds are more than 35 kts. Flying unit commanders may prescribe more stringent wind limitations. For test missions, wind limits are part of the safety review process.

13.4.2. All aircraft not limited as above will follow wind limitations in applicable flight manuals.

13.4.3. To increase the safety margin for practice lakebed landings, there is a crosswind limit of 50% of the flight manual limit for each aircraft authorized to perform lakebed landings. Restriction applies only to practice landings for training purposes, not to lakebed landings performed for flight safety.

13.5. Overflight Of Populated Areas.

13.5.1. Do not overfly Victorville, Palmdale, Apple Valley, Lancaster, Mojave, Tehachapi, Adelanto, Boron, Rosamond, or other residential communities below 3,000’ AGL any time except under emergency conditions or as directed by an appropriate ATC agency (helicopters are not restricted).

13.6. Supersonic Operations.

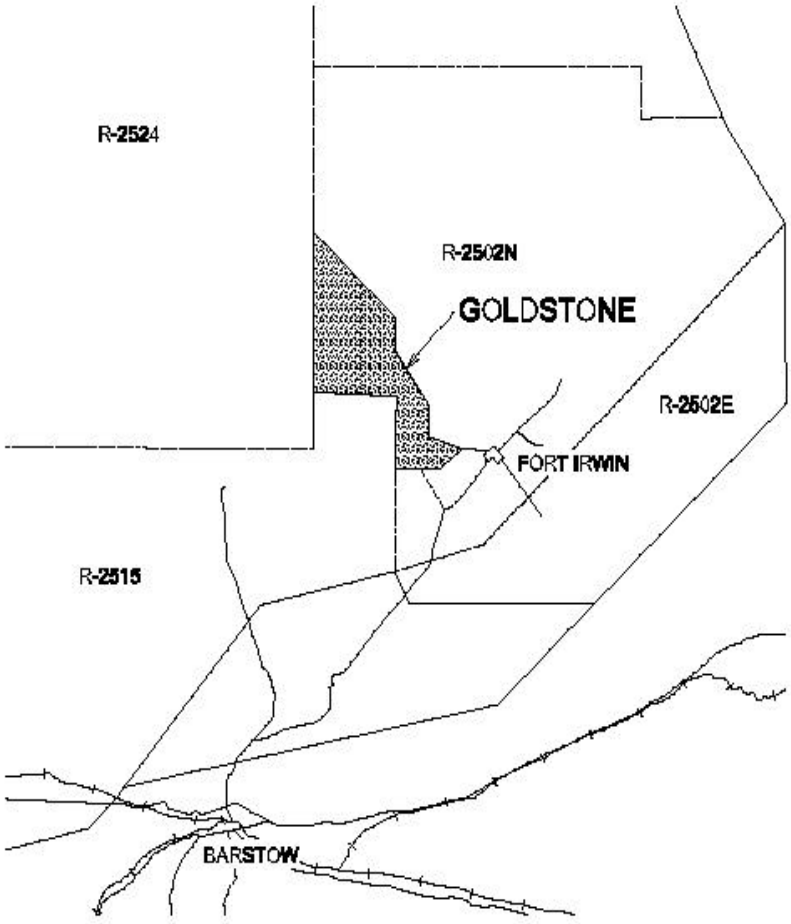
13.6.1. Conduct supersonic flight operations only in designated supersonic corridors. Pilots not conducting supersonic operations should avoid supersonic areas at altitudes SPORT or JOSHUA call

hot. Coordinate with 412 OG/CC for individual approval of supersonic test profiles designed for specific mission requirements which cannot be accomplished within designated supersonic corridors.

13.7. Overflight Of Nasa Goldstone Facility. (Fig 13-1.)

13.7.1. Overflights are restricted to 15,000' MSL when Goldstone is conducting normal daily activities.

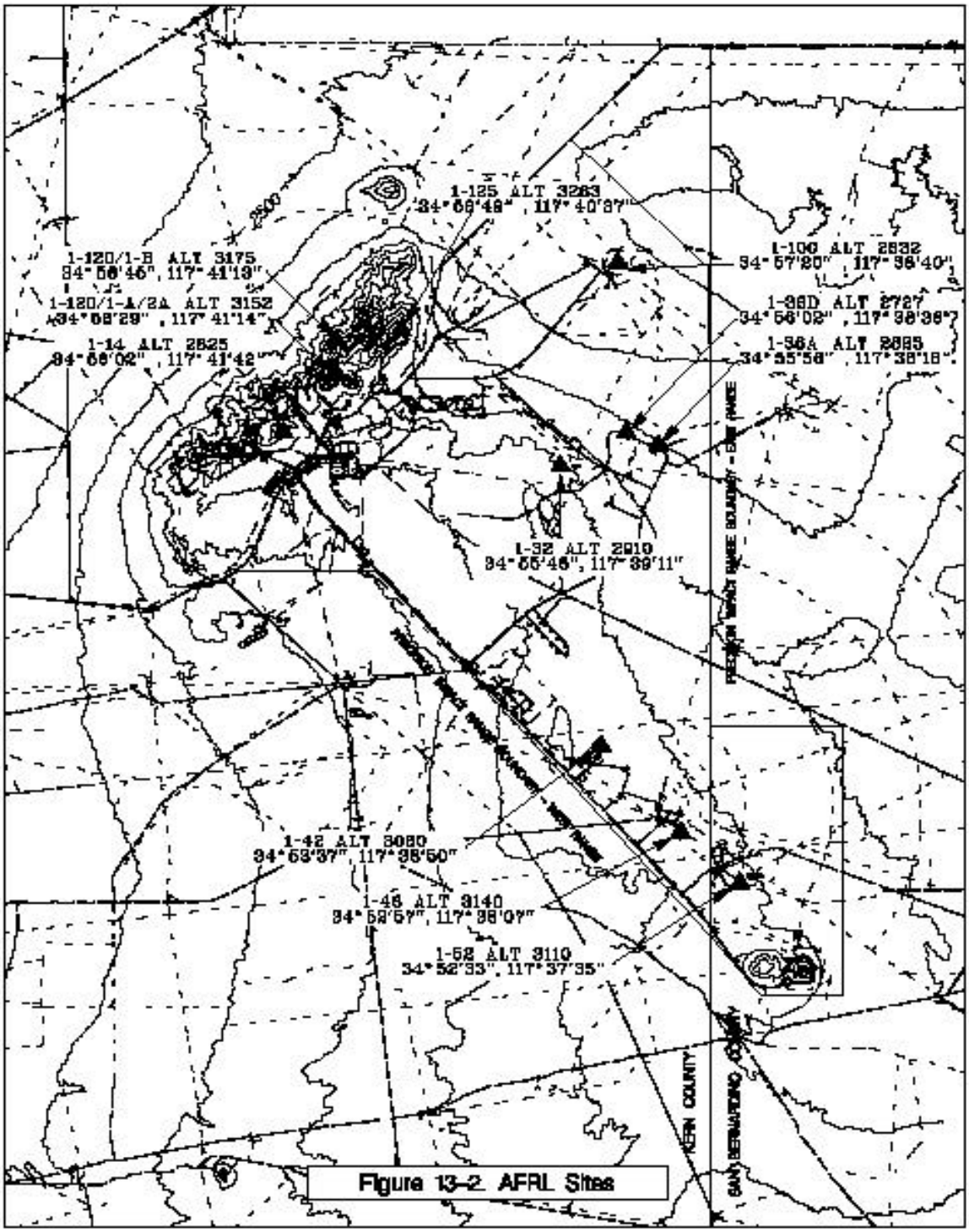
Figure 13.1. NASA Goldstone.



13.8. Overflight Of The Detachment 7 Air Force Research Laboratory. (Fig 13-2)

13.8.1. Solid rocket engine firings are conducted on Leuhman Ridge on a periodic basis. A potential hazard exists from fragments due to accidental motor explosion and from toxic clouds due to exotic fuels. The hazardous area includes Leuhman Ridge and extends east along Mars Blvd. to Haystack Butte. Coordinate with the Safety Operations Center at extension 5-5632 on all anticipated flights below 5,300' MSL. This flight restriction also encompasses the X-33 Operations Area.

Figure 13.2. AFRL Sites.



13.9. Borax Mine Blasting.

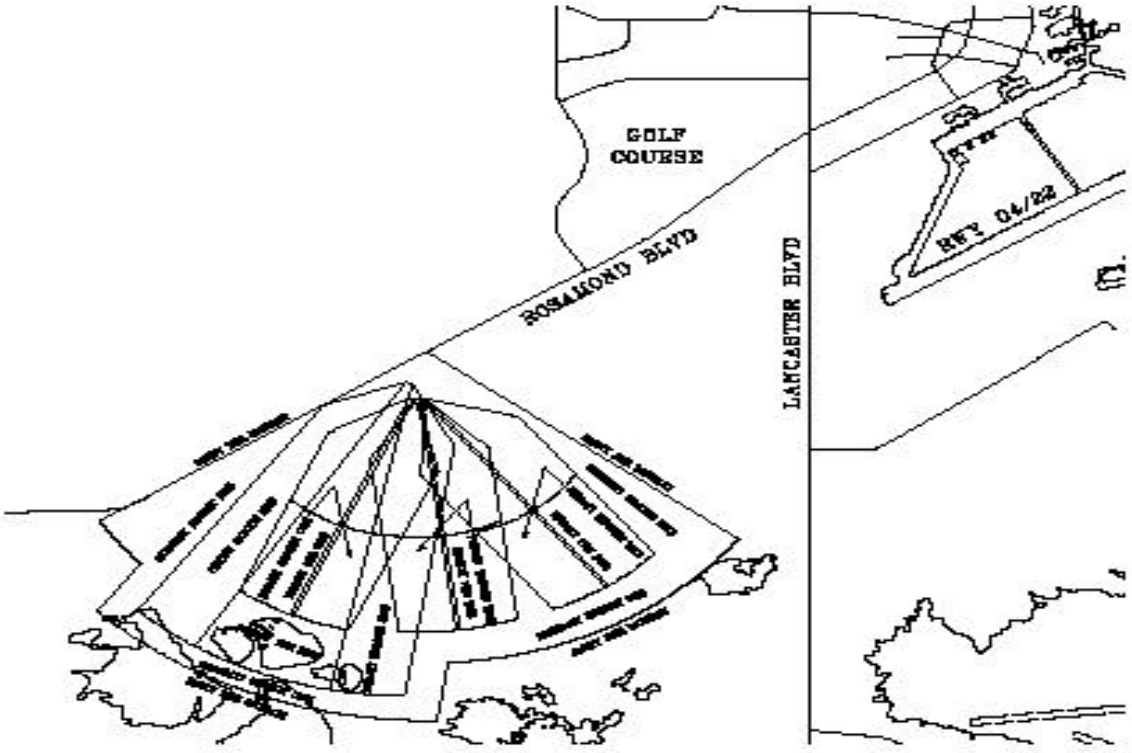
13.9.1. High explosive blasting occurs at the Borax open pit mine near Boron. Avoid flying below 4,500' MSL over the area encompassed by one half (1/2) mile laterally from the perimeter of the mine and one and one quarter (1-1/4) miles south of the mine pit.

13.10. Inoperative Transponder.

13.10.1. Aircraft with an inoperative transponder will not be accepted for R-2508/R-2515 flights. If losing Mode 3A or C capability is experienced when not accompanied by an aircraft with an operable transponder, return to the local VFR traffic pattern. SPORT/JOSHUA, when observing an aircraft with an inoperative transponder will direct the aircraft to RTB. 412 OG/CC may approve special exceptions to the above procedures provided the conditions adhere to the procedures contained in FLIP General Planning.

13.11. Small Arms Firing Range. (Fig 13-3)

Figure 13.3. Small Arms Firing Range.



13.11.1. The Security Police Combat Arms Training and Maintenance (CATM) Section, regularly conducts live fire training with M-60 machine guns/7.62mm ball and tracer rounds on the Small Arms Range. Ricochets may reach 4,500' AGL (6,800' MSL) in the firing zone. Security Police spotters will cease firing when aircraft approach and/or enter the firing zone. Spotters have a restricted field of view to the west due to a nearby ridge line. Therefore, aircraft entering the Alpha Corridor from the north below 6,800’ MSL must enter at a point west of Buckhorn Lake. Avoid overflight of the Small Arms Firing Range below 6,800’ MSL when active. Tower will insert activation of the range on the ATIS (“Small Arms Range Active”).

13.12. Alternate Control Tower Procedures.

13.12.1. There is no alternate control tower at Edwards AFB. If the control tower needs to be evacuated, operations will be resumed from one of the Base Operations vehicles from the approach end hammerhead for the runway in use. When these procedures are in effect, the normal base-flying mission cannot be supported due to equipment and operational limitations.

13.12.2. When the alternate procedures are in effect local aircraft operations will be kept to mission essential only.

13.12.3. Arrivals are restricted to full stop.

13.12.4. Terminate SFO, lifting body, and shuttle approaches because of visibility restrictions.

13.12.5. No VFR local work is permitted.

13.12.6. Due to visibility limitations, aircraft will not be "cleared" to land or takeoff. The controllers will make every effort to ensure a safe runway environment, however a clear runway cannot be assured from their restricted vantage point. Therefore, aircraft will be instructed that arrival/departure will be at their own risk.

13.13. Trouble Shooting By Aircrews.

13.13.1. Only qualified maintenance specialists should troubleshoot aircraft maintenance discrepancies. Since improper troubleshooting can lead to aircraft damage and jeopardize the safety of personnel, 412th TW crewmembers are specifically prohibited from conducting impromptu troubleshooting airborne or on the ground. When a basic airframe system malfunction occurs (e.g. landing gear, engines, flight controls, etc.), follow flight manual guidance and safely recover the aircraft, then turn it over to maintenance for qualified troubleshooting.

13.14. Maximum Speed Restriction.

13.14.1. Limit maximum speed to 450 Knots Indicated Airspeed (KIAS) below 5,000' AGL unless waived by 412 OG/CC. Exceptions include:

13.14.2. Higher speeds authorized by an approved test plan for test or test support missions.

13.14.3. Approved TPS curriculum missions.

13.14.4. Air-to-ground training missions within the confines of a gunnery range.

13.14.5. B-1 flights where wing deflection/structural loads or "Minimum Mach" for TF flight requires higher speeds. (550 KIAS limit).

13.15. Release Of Chaff.

13.15.1. Chaff release is only authorized on specifically approved air-to-ground gunnery ranges, MOAs, and Warning Areas. Chaff release is not authorized on Military Training Routes (MTR) or non-approved MOAs. Current guidelines authorize chaff in R-2515, Owens, Saline, Panamint, and Shoshone. Contact AFFTC's Frequency Management Office for additional details.

13.16. Instructor Pilot (IP) Double Duty.

13.16.1. To keep the quality of instruction at a maximum and prevent task saturation, the following policies concerning performing simultaneous Instructor Pilot (IP) duties for crewmembers in two (2) fighter/attack/trainer aircraft are in effect.

13.16.2. IPs instructing a crewmember of another aircraft will not perform simultaneous IP duties within their own aircraft.

13.16.3. IPs will be in active control of their own aircraft when providing instruction to another aircraft's crewmember, e.g. the crewmember in the other seat of the IP's aircraft will not fly the aircraft.

13.16.4. 412 OG/CC may waive these restrictions on a case-by-case basis.

13.17. USAFTPS FTE/FTN Hands-On Flying.

13.17.1. AFFTC flight test engineers or navigators, while at aircraft controls, are prohibited from conducting the following activities in AFFTC aircraft or on qualitative evaluations in aircraft operated by other agencies:

13.17.1.1. Closer than route formation flying.

13.17.1.2. Refueling.

13.17.1.3. Takeoffs.

13.17.1.4. Landings.

13.17.1.5. Approaches below 300' AGL.

13.18. Bird Aircraft Strike Hazard (Bash) Program.

13.18.1. The SOF has primary responsibility for ensuring BIRDWATCH condition information is relayed to Command Post/Current Operations. Pilots or air traffic controllers shall advise the SOF of any observed bird activity that might pose a hazard to flight operations. When the SOF (or the Control Tower Watch Supervisor in the absence of the SOF) detects or is advised of a hazardous bird condition on the airfield, a low-level route, or a working area, the following shall be accomplished:

13.18.2. Evaluate, and if required, alter the BIRDWATCH condition for the affected area.

13.18.3. SOF will advise the 412 OG/CC, if bird strike hazards warrant curtailed/altered flight operations. Flight operations will be altered as follows:

13.18.3.1. Airfield:

13.18.3.1.1. Low: Normal operations.

13.18.3.1.2. Moderate: Limit takeoffs: Pilots should consider delaying takeoffs if birds present a significant takeoff hazard. Close Tower Flyby line. Restrict number and minimum altitude of low approaches, and/or close overhead pattern/instrument approaches to meet minimum requirements (full stop unless mission warrants the increased risk). Authorize early turnout and/or deletion of the 3,300' MSL restriction until departure end. Pilots will be particularly cognizant of bird activity and notify tower/SOF of potential hazards. Initiate bird dispersal as required.

13.18.3.1.3. Severe: Discontinue takeoffs, limit recoveries to one approach to a full stop landing and/or close airfield to all flying operations except emergencies. Initiate bird dispersal operations.

13.18.3.2. Low Levels:

13.18.3.2.1. Low: Normal operations.

13.18.3.2.2. Moderate: 1,000' AGL minimum altitude on legs with bird activity, adjust airspeed as appropriate.

13.18.3.2.3. Severe: 1,500' AGL minimum altitude on legs with bird activity, adjust airspeed as appropriate.

13.18.3.3. Ranges:

13.18.3.3.1. Low: Normal operations.

13.18.3.3.2. Moderate: Limit deliveries/operations to minimum altitude as determined by RCO.

13.18.3.3.3. Severe: No further deliveries/operations. Range airspace will be closed until further notice.

13.18.4. Scheduling Procedures. The Bird Avoidance Model (BAM) for R-2508 depicts a "Caution" level or period of "Moderate" bird activity one (1) hour before and after sunrise/sunset from October through March. Thus the following procedures apply:

13.18.4.1. Schedulers will NOT schedule low level training sorties during these times.

13.18.4.2. Test missions should avoid low level flight during these times unless flight within one hour of sunrise/sunset is required to meet test objectives.

13.18.4.3. Squadron CC review, approval, and consideration of birds hazards is required for any such mission.

13.18.5. The Control Tower Watch Supervisor shall include bird watch advisories on the ATIS when advised. Tower shall advised Airfield Management and SPORT/JOSHUA of the Bird Watch Condition.

13.18.6. During Phase II (October 31 – March 31) only mission essential flights are authorized at NAS Pt Mugu. Check with the AFFTC Flight Safety Office for the official start and termination date.

13.19. Intercepts On Targets Of Opportunity.

13.19.1. AFFTC aircrews will not perform "Intercepts on Targets of Opportunity." All intercepts will be fully briefed between the aircrews participating in intercepts. Any event not planned and briefed is prohibited. Should another person or aircraft instigate any such unauthorized events, you will not participate and will, by the most safe and expedient method, continue with your planned mission. The definition of "briefing" is understood to be a face to face or a phone briefing to discuss the event.

13.20. Airfield Lighting.

13.20.1. When runway lights are inoperative, routine landings will not be authorized between official sunset and sunrise.

13.21. Aero Club Use.

13.21.1. The following procedures shall be adhered to for Aero Club use of the Main Base Runway:

13.21.1.1. Aero Club aircraft may utilize the Main Base Runway to conduct ILS approaches from 1800L - 2200L Monday - Friday and from 0800L - 1600L on Saturday, Sunday, and holidays.

13.21.1.2. In the event of extended flight operations (after 2200L Monday - Friday and anytime on Saturday, Sunday, and Holidays), Aero Club aircraft may conduct ILS approaches at the discretion of the Control Tower Watch Supervisor.

13.21.2. The following procedures shall be adhered to for Aero Club use of the Lakebed runways:

13.21.2.1. Aero Club aircraft may utilize any green lakebed runway IAW applicable Aero Club Operating Instructions.

13.21.2.2. Aero Club use of the Lakebed runways shall be on a non-interference basis to other AFFTC aircraft with the ultimate decision resting with the Control Tower Watch Supervisor.

13.21.3. Aero Club use of the Main Base Runway and Lakebed Runways is for official use only and shall not be used for routine landings.

13.21.4. The Control Tower must be operational for all Aero Club operations to the Main Base and Lakebed Runways. Changes shall not be made to the procedures contained herein without the prior approval of the 412th OG/CC or designated representative.

13.22. Mission Pilot (MP) Touch And Go Airfields.

13.22.1. Air Force Material Command Manual (AFMCMAN) 10-202 Vol. 1, requires the Director of Flight Operations (DFO) to authorize selected airfields for MP touch and go’s. In addition to Edwards AFB and Palmdale Plant 42, Table 13-1 designates such airfields.

13.22.2. Unit commanders may further restrict this list.

13.22.3. The DFO may authorize MP touch and go’s at airfields not on this list (i.e. deployed or test locations).

C-12, T-39, C-141, C-17, C-130 KRIV KVBG KNTD KLSV KNJK KBFL KVCV KNID KMHV	**F-16** KVBG KNTD KLSV KNID KTUS KLUF KHIF KFAT KYUM KNLC
C-135, C-18, KC-10 KVBG, KNTD, KLSV, KNID, KFAT, KYUM, KNUC, KFFO	**F-15, T-38** KNKX KNTD KVBG KPDX KYUM KLSV KSUU KBAB KTCM KNLC KLUF KDMA KHMN KRND KVPS KFFO KTNX KNID
B-52, B-1 KBAB KVDB KSUU KVCV	**B-1** KNID
B-2 KVBG KLSV KNID KNLC	**C-12** KWJF L71
F-117 N/A	**F-22** TBD

13.23. Inyokern Transition Area Procedures. (Fig 13-4)

13.23.1. The Inyokern Transition Area was developed to segregate Part 121 air carrier traffic from participating R-2508 Complex users. It allows the air carrier to enter the Isabella MOA enroute to Inyokern airport located on the southwestern corner of Restricted Area R-2505. The Transition Area is only active 0500-0700 Local (L), 1100-1300L, and 1800-2359L. During activation times specific permission from either JOSHUA or SPORT prior to penetrating the vertical/lateral confines of the transition area is required. It is the aircrew's responsibility to remain clear of the affected airspace. During other then those active times described above, specific permission to operate within or transit this area is not required.

13.23.2. There are two methods of requesting entry into or through the corridor.

13.23.2.1. Aircrews desiring to transit the Transition Area one time, one direction, shall request permission from JOSHUA/SPORT to transit the corridor from (cardinal point) to (cardinal point) (e.g. "Cobra 50 request transit of the Inyokern Transition Area from northwest to southeast").

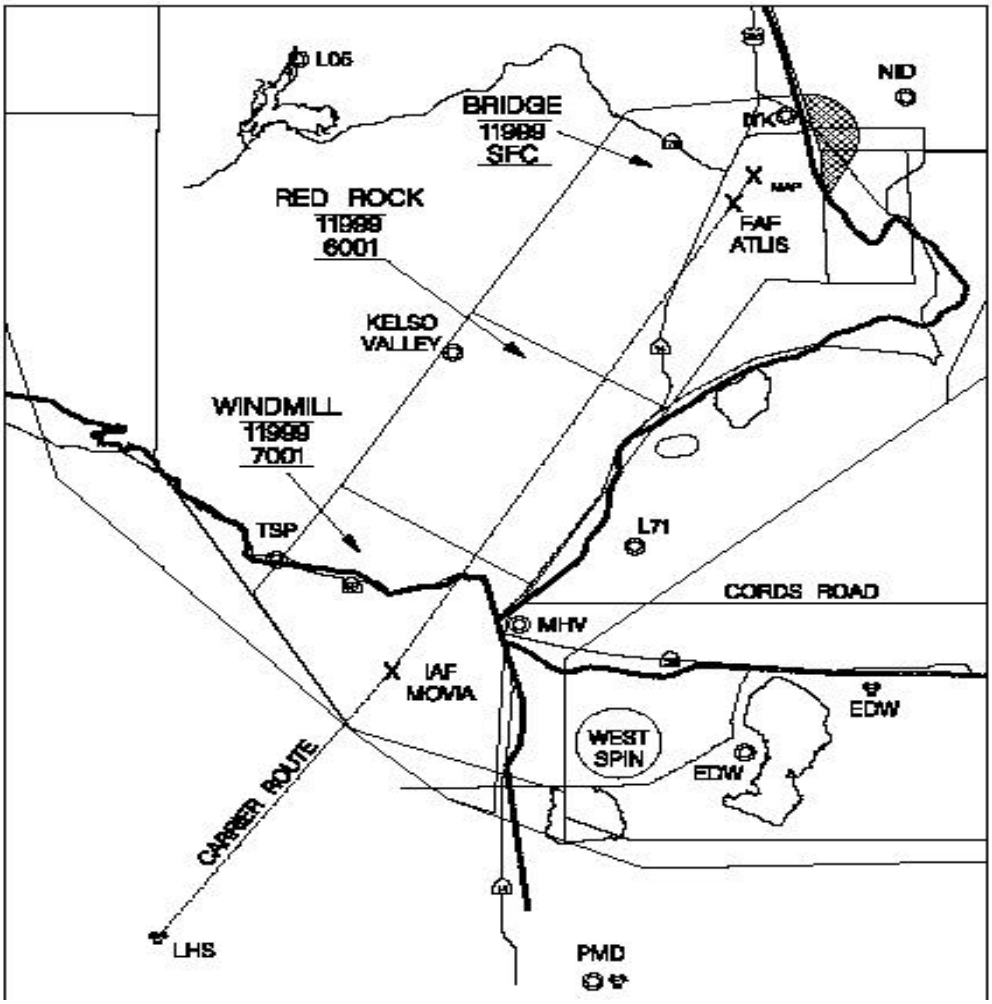
13.23.2.2. Aircrews requiring to work within the vertical/lateral limits of the corridor shall request a clearance from JOSHUA/SPORT which specifies a time duration (e.g. "Cobra 50 request clearance to operate within the Inyokern Transition Area for the next 15 minutes"). This request will allow the aircrew to transit the corridor numerous times or to operate within the Transition Area for the time period requested.

13.24. T-38 Hot Weather Procedures.

13.24.1. The high temperatures that occur at Edwards, in conjunction with other takeoff and landing data (TOLD) determinants, can result in a Category (CAT) III takeoff environment or takeoff factors at which single engine takeoffs are not considered possible.

13.24.2. Prior to flight, aircrew will perform TOLD calculations to determine if they are Category III. TOLD calculations will be accomplished using the most accurate means available and include the influences of configuration, wind, RCR, and slope. Any Category III operations will require DFO, i.e. Operations Group Commander, approval. Approval will be granted on a case-by-case basis for test and test support sorties only. DFO approval CAT III sorties should consider using Rwy 4 for lakebed availability, and consider flying with an empty back seat to reduce takeoff gross weight.

Figure 13.4. INYOKERN Transition Area.



13.24.3. Prior to flight, aircrew will compare takeoff weight with takeoff factor (TOF) to determine if single-engine takeoff is possible. Aircrew will not takeoff if single-engine takeoff is not considered possible, based on a takeoff weight and TOF comparison, unless they first receive DFO approval. DFO approval will be granted on a case-by-case basis for test and test support sorties only. Approved sorties should be launched using Rwy 4 for lakebed availability, and consideration should be given to flying with an empty back seat. If using Rwy 4 would result in CAT III operations, an additional DFO waiver is necessary per paragraph 13.24.2 guidance. Table 13-2 is a guideline for the maximum TOF, based on aircraft weight, where single-engine takeoff is considered possible.

AIRCRAFT WEIGHT	TAKEOFF FACTOR
11,800	4.3
12,000	4.2
12,500	4.0
13,000	3.8
13,500	3.6
14,000	3.4

13.24.4. With squadron operations officer approval, aircrew may reduce the aircraft takeoff weight (by burning down fuel prior to takeoff or by flying solo) in order to bring the aircraft into CAT I operation and/or lower the takeoff factor to make a single-engine takeoff possible.

13.25. Weather Recall Areas. (Fig 13-5)

13.25.1. Four areas within R-2515 and R-2508 (Isabella and Panamint Work Areas) have been identified to be recalled in the event severe weather requires route deviations by aircraft operating in the National Airspace System (NAS).

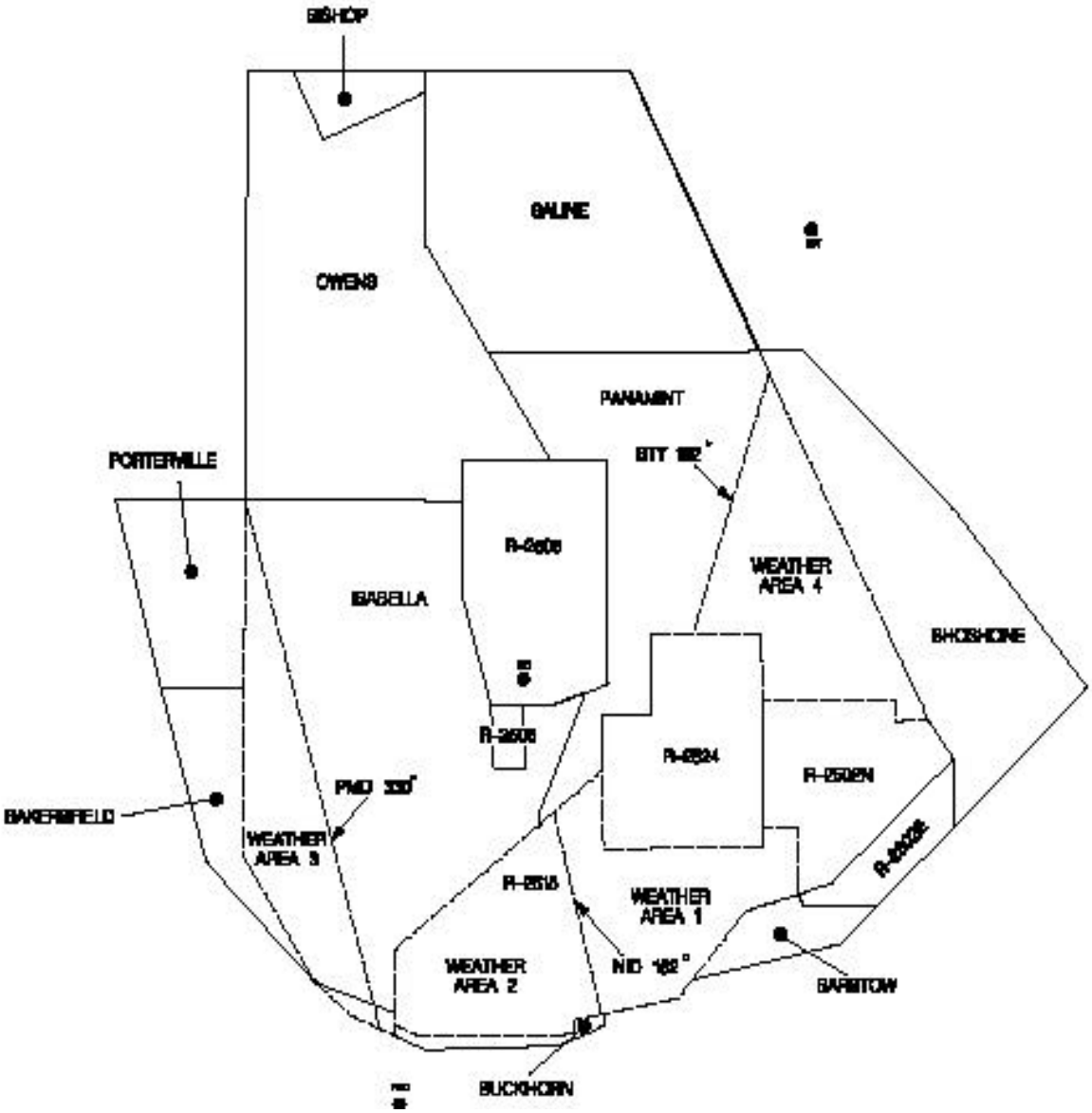
13.25.2. During the coordination process, JOSHUA will request the airspace and altitude requirements to contain the route deviations and provide an estimated duration. These areas will only be released back into the NAS after coordinating the approval with the Using Agencies. Altitudes for all Weather Areas will be as cooridnated. These weather areas may be recalled from the FAA with a 20 minute notice.

13.25.3. After notified by SPORT, Center Scheduling will coordinate with the various organizations to determine if airspace may be released back to the FAA. The results will be forwarded to SPORT and annotated on their flight schedule. Only after this coordination has occurred will any action be taken to release airspace. In the event of hazardous flight conditions in the NAS and flight test conflicts within R-2515, the 412th Operations Group Commander will be notified for the final decision.

13.25.4. Weather Area One (1) encompasses the eastern half of R-2515 using the China Lake 152× radial. Weather Area Two (2) is defined as west of this radial to the western boundary of R-2515. Highway 395 falls along the China Lake radial and will be used as the visual reference when determining the two work areas within R-2515. Coordinates for this area are 35×21’25”N 117×35’31”W to 34×51’14”N 117×26’36”W. Weather Area Three (3) uses the Palmdale 330× radial. Although this radial follows no visible landmarks, a viable reference would be a line extending from Mojave, Kernville, to the southwestern corner of the Owens Work Area or the northwest corner of the

Isabella Work Area. Coordinates for this area are 34×48’40”N 118×07’34”W to 36×08’00”N 118×35’00”W. Weather Area Four (4) overlies the Panamint MOA and is identified by the Beatty 182× radial. This radial follows the eastern slopes of the Panamint Range. Aircrews should remain west of the Panamint range in order to avoid this area. Coordinates for this area are 35×47’47”N 117×07’12”W to 36×26’04”N 116×53’05”W.

Figure 13.5. Weather Deviation Areas.



Chapter 14

MUNITIONS PROCEDURES

14.1. General Definitions.

14.1.1. Forward Firing Munitions. A munitions item propelled forward from the aircraft or propelled from the aircraft after separation (e.g., guns, rockets, missiles, etc.).

14.1.2. Foul Line Road. A well defined roadway located 1,600' in front of the strafe targets on DAGRAG and East Range.

14.1.3. Hot Guns. An aircraft's gun system not mechanically safed.

14.1.4. Gun Jam. An aircraft's gun system that malfunctioned during firing.

14.1.5. Hot Run. Intent to release, lase, or fire an object.

14.1.6. Hung Munitions. Munitions not released after a release attempt.

14.1.7. Inert Munitions. A munitions item with inert filler and no live explosives, spotting charges, or motors (e.g. cement filled bombs, dummy missiles, etc.).

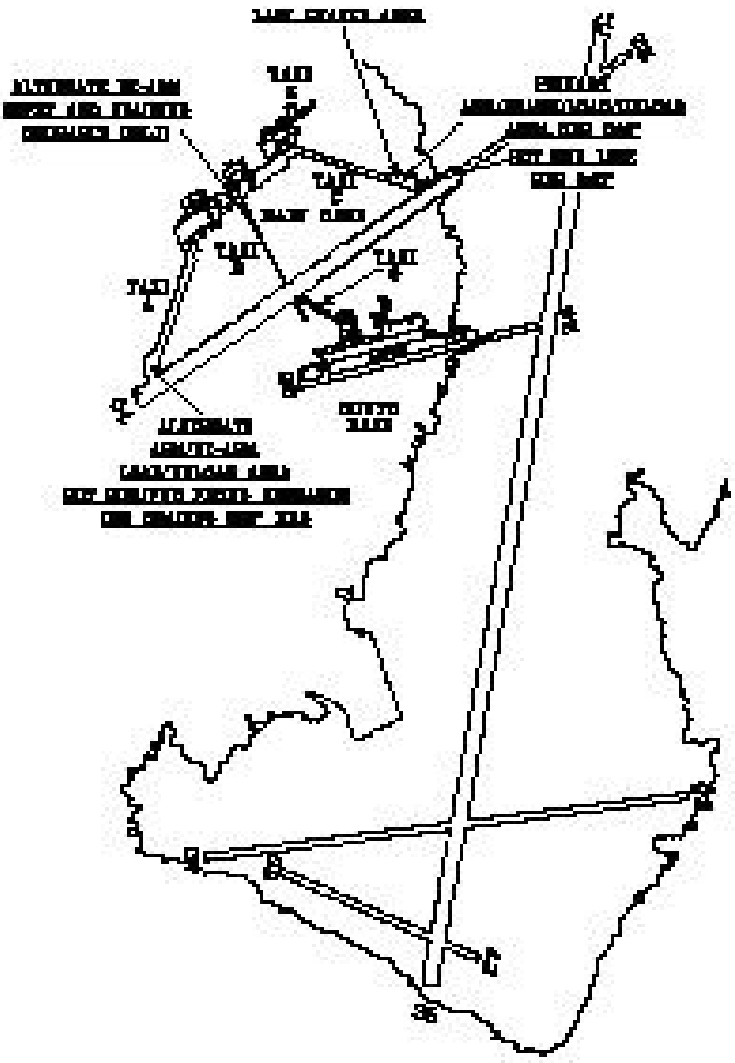
14.1.8. Live Munitions. A munitions item with explosive fillers capable of producing a high-order detonation. Live munitions are not authorized in the PIRA.

14.1.9. Training Munitions. An inert filled munitions item or ballistic shape with only a spotting charge or parachute ejection device with no high order detonation (e.g. BDU- 33, MK-106, Captive air training missile(s), etc.).

14.1.10. Unexpended Munitions. Remaining munitions where no release was attempted.

14.2. Ground Operations Involving Munitions. (Fig 14-1.)

Figure 14.1. ARM/DE-ARM Areas.



14.2.1. The alternate de-arm areas are located at the south end of Taxiway A (Rwy 4 hammerhead) and the north end of Taxiway B (center taxiway) prior to the intersection with the main ramp. The south end of Taxiway A can be used to arm and de-arm live munitions. Rwy 4 hammerhead is for arming and de-arming inert and training munitions only. Aircraft with forward firing munitions must use heading 220× MAG.

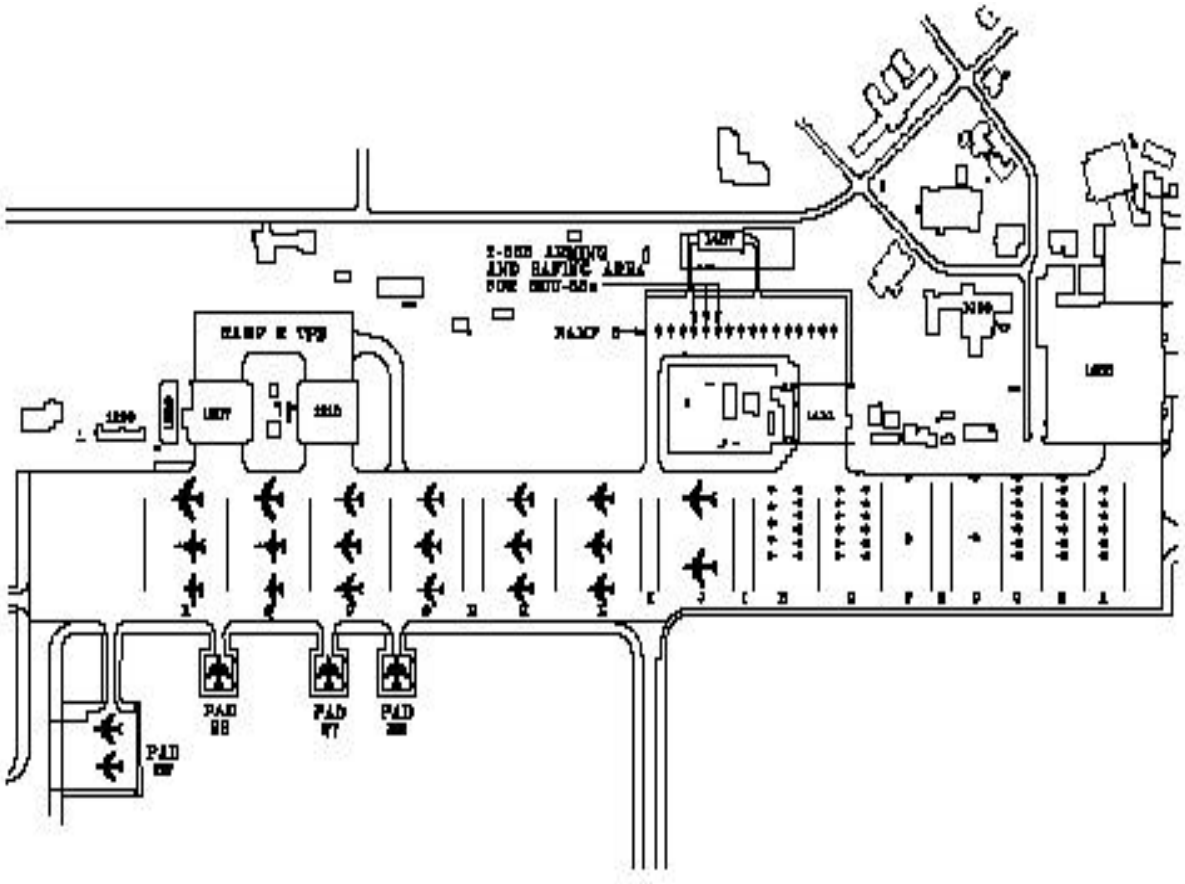
14.2.2. Due to the hazards of working in the weapons bay, arm B-1B, B-2, B-52, F-117, and F-22 loaded with live internal/external forward firing munitions in the load or downlosd area before engine start. Exercise extreme caution during last chance inspection. Personnel will not stand or pass in front of or under B-1B, B-2, F-117, or F-22 with internal/external forward firing munitions or internal/ external loads.

14.2.3. Aircraft carrying captive AIM-9 missiles may only be arm/de-armed at the aircraft parking spot.

14.2.4. The primary arm/de-arm area for live munitions is a portion of Taxiway C (Rwy 22 hammerhead) leading to Rwy 22. The primary arm/de-arm area for inert and training munitions is the last chance area. Aircraft with forward firing munitions or hot guns must use heading 040× Magnetic (MAG).

14.2.5. AT-38B aircraft with BDU-33s loaded on the SUU-20 dispenser will have safety pins/devices removed prior to engine startup and installed after engine shut down. AT-38B aircraft will be armed and safed at parking spots located at Ramp 3, Spots 11, 12, and 13. (Fig 14-2)

Figure 14.2. Main Ramp.



14.2.6. Aircraft with live or forward-firing munitions parked at the Load/Download area or hot gun line normally get a last chance inspection and are armed/de-armed in the Load/Download or Hot Gun Line area. Aircraft taxiing from other parking areas with any type of munitions (pinned/safe) receive a last chance inspection in the Last Chance area. Armament personnel will remove armament safety pin/devices, charge guns, etc. Ensure all switches are Off/Safe and both hands are in view during arming.

14.2.7. Taxi aircraft carrying inert or training munitions with all safety devices installed. (Exception: Aircraft carrying only captive AIM-9 missile(s) may taxi to designated aircraft parking spots(s) or last chance areas with safing gear/devices removed).

14.2.8. Taxi or tow aircraft to be loaded with forward firing munitions to the primary load/download area (Heading 040½). Figure 14-1 shows permissible headings for aircraft in the load/download areas.

Special weapons test units and live non-forward firing munitions, may be de-armed at the alternate de-arm area on Taxiway A.

14.2.9. Advise tower when taxiing aircraft carrying live munitions and taxi the aircraft as far as practicable from personnel and equipment. When Rwy 4 is active, taxi down Rwy 22 as far as necessary for takeoff and make a 180½ LEFT TURN to depart Rwy 4. When Rwy 22 is active, enter Taxiway C. Do not taxi with hot guns on Taxiways A, B, E or F.

14.3. In-Flight Operations Involving Munitions.

14.3.1. All flights involving live munitions, originate and terminate at main base. Except in an emergency, do not land at North Base, South Base, or the lakebed runways when carrying munitions or returning from missions expending munitions.

14.3.2. All AFFTC aircraft using unmanned weapons ranges such as Mojave B2 North Range Area will be a flight of at least two (2) aircraft. This can be a target-tow aircraft, safety/photo chase, FAC aircraft, or other accompanying aircraft.

14.3.3. Ensure line of sight or line of flight is such that at no time will the aircraft bear on or pass over any populated area. The following minimum recovery altitudes for Class A ranges apply to all AFFTC weapons delivery flights. HQ AFMC/DO must approve lower minimums.

Table 14.1. Minimum Recovery Altitudes for Weapons Delivery.

A.	LOW ANGLE STRAFE (LAS): TARGET:	The standard target panel sizes with proper foul lines are: 15' X 15' - - 1,200' 20' X 20' - - 1,600' 25' X 25' - - 2,000' Dive Angle 5-15×× Minimum Recovery Altitude - 75' AGL LAS authorized on Class A Range only.
B.	HIGH ANGLE STRAFE (HAS):	Dive Angle 30×× minimum Minimum Recovery Altitude-1,500' AGL
C.	LOW ANGLE BOMBING (LAB):	*One-half (1/2) the computed altitude from bomb release to recovery or 100' AGL, whichever is higher.
D.	LOW ANGLE/LOW DRAG BOMBING (LALD):	Minimum Recovery Altitude 1,000' AGL (A-10 - 800' AGL)
E.	DIVE BOMBING (DB):	Minimum Dive Angle - 30×× Minimum Recovery Altitude 1,500' AGL (A-10 - 1,000' AGL)
F.	HIGH ALTITUDE DIVE BOMB (HADB):	Minimum Dive Angle - 45×× Minimum Recovery Altitude 4,500' AGL
G.	LAY DOWN (LD):	** Minimum Altitude - 100' AGL
H.	ROCKETS (RX):	Minimum Dive Angle - 15×× Minimum Recovery Altitude 1,000' AGL

For Class B or C ranges: Minimum altitude is one half (1/2) computed altitude loss from bomb release to recovery or 300' AGL, whichever is greater.

*For Class B or C ranges: Minimum altitude is 200' AGL.

Note: The PIRA is a Class A range when an RCO is on duty. Without an RCO, PIRA is Class B. Superior Valley is a Class A range. Mojave B2 North Range is a Class C range.

14.3.4. Make a straight-in approach to landing when carrying external vertical drop munitions, such as bombs, napalm, etc.. This includes aircraft with hung bombs and aircraft experiencing an inadvertent munitions release. Advise tower before landing if a 180½ turn back to the de-arming area is required. If one is required, make a LEFT TURN to back-taxi.

14.3.5. In the event of an emergency landing, notify tower of munitions aboard. Use unexpended or hung munitions landing procedures as applicable. If you cannot positively (visually) determine all intended munitions have been released/fired, assume hung munitions, return to the de-arm area, and follow hung munitions procedures.

14.3.6. Overhead Approaches. The straight-in approach restrictions are waived if the flight test requires overhead approaches with munitions/stores. However, document the overhead requirement and brief it during preflight preparations. Overhead patterns may be made with the following external stores:

14.3.6.1. Fuel and oil tanks.

14.3.6.2. Stores, other than vertical drop munitions, secured to the aircraft and not intended to be jettisoned or dropped (i.e. instrumentation pods, gun pods, baggage pods, aerodynamic shapes, etc.).

14.3.6.3. Empty rocket/missile dispensers.

14.3.6.4. Forward firing missiles, if no attempt has been made to fire.

14.3.7. If suspecting hung flares, return using hung munitions procedures and shut down the aircraft at the hot gun line arm/de-arm area.

14.3.8. Accomplish landings according to paras 14.4. or 14.5., as applicable.

14.4. Unexpended Munitions Landing Procedures.

14.4.1. This does not apply to external fuel tanks, pylons only, and captive AIM-9s only.

14.4.2. Land from a straight-in approach except as stated in para 14.3.6.

14.4.3. Notify tower of the type of munitions still on board and if making a 180o left turn after landing.

14.4.4. When returning with releasable munitions/suspension equipment requiring safety pin/device removal before flight, install these pins/devices before returning to the main ramp. De-arm munitions in the appropriate de-arm area for safing, stop on the right side of the center taxiway to allow other aircraft to pass. With live or forward firing munitions, land Rwy 4, winds permitting. Roll and taxi down the runway to the primary de-arm area (heading 040×).

14.4.5. Unless munitions load crews are pre-briefed of the time and location (de-arm area or alternate de-arm area) of postflight de-arming/safing, inform CONFORM (304.0) of ETA and place of

intended de-arming/safing. Give CONFORM as much notice as possible to ensure de-arm crews are present on landing.

14.4.6. Once in the appropriate de-arm area ensure all switches are in the Off/Safe and raise both hands in full view of the munitions load crew until safing is completed.

14.4.7. Permit only the munitions load crew near the aircraft during de-arming/safing operations. All other personnel remain clear of the aircraft unless requested by the munitions load crew chief.

14.4.8. Aircraft with live munitions internally loaded taxi to the primary arm/de-arm, load/unload area (heading 040o) or the alternate arm/de-arm, load/unload area (heading 220×) with the weapons bay doors closed. Ensure switches are Off/Safe and shut down the aircraft.

14.4.9. Park munitions loaded transient aircraft at the hot gun line and/or arm/de-arm area (heading 040o) until you know what type munitions are aboard and what action to take.

14.4.10. If munitions safing pins/devices cannot be installed, the munitions are hung; stop safing and call EOD immediately. Follow hung munitions procedures.

14.4.11. After safing, taxi to the appropriate parking/downloading area.

14.5. Hung Munitions Landing Procedures (Includes hung flares).

14.5.1. Land from a straight-in approach. An emergency must be declared for all hung munitions. Upon landing, notify Command Post.

14.5.2. Notify tower of the type of hung munitions and, when landing Rwy 22, a left 180 is required for a back-taxi. Edwards Command Post/Current Operations notifies EOD when an emergency is declared. MOC notifies loading personnel to respond to the designated end of the runway.

14.5.3. When forward firing munitions (failed rocket/missile launch or unsafe/jammed guns) are hung, land on Rwy 4 (winds permitting). If landing Rwy 22, make a 180½ LEFT TURN at the 4,000' remaining marker to maintain a maximum safe distance to South Base and Lancaster Blvd. Taxi east on the active runway to the primary arm/de-arm area (heading 040×) or Hot Gun Line.

14.5.4. When live internally loaded munitions are hung, taxi to the Hot Gun Line arm/de-arm area (heading 040×) or the alternate arm/de-arm area (heading 220×) with the weapons bay doors closed (aircraft with jammed guns will use the Hot Gun Line). Ensure switches are Off/Safe and shut down the aircraft. This also applies to aircraft suspecting hung flares (taxi to the de-arm area and shut down).

14.5.5. Once on the Hot Gun Line or applicable arm/de-arm area, ensure all switches are Off/Safe and raise both hands in full view of the loading personnel.

14.5.6. Hung munitions and unsafe munitions indications in the cockpit should be verified by weapons loading personnel at the de-arm area. If they cannot safe the munitions, shut down the aircraft and request EOD help through Edwards Command Post/Current Operations. The EOD team chief evacuates all nonessential personnel. EOD safes the hung munitions. When safed, EOD informs the aircrew and releases the aircraft to the munitions load crew or contractor loading personnel. The load crew or contractor loading personnel complete the safing process of other munitions (safety pins/ devices) or guns as required.

14.5.7. When safed, taxi or tow the aircraft to the appropriate download area. Taxi or tow any aircraft containing internally loaded stores to the desired unloading area with the weapons bay doors closed.

14.5.8. Aircrews suspecting hung flares use above procedures. Notify EOD, Munitions Loading, and Base Operations. EOD and Munitions Loading remove flares at the primary arm/de-arm area (heading 040×). Base Operations performs a runway check to ensure the runway is free of foreign objects.

14.6. Towing Aerial Targets.

14.6.1. General. Air-to-air operations may be conducted at Point Mugu, Mojave B2 North Range, or Nellis AFB, NV. When scheduled to use Pt Mugu or Nellis AFB, contact Current Operations for prior coordination with the appropriate control agency to ensure operations are conducted under the local operating procedures for those particular ranges.

14.6.2. Responsibilities. The tow aircraft commander is responsible for the safe conduct of the mission, and will:

14.6.2.1. Make sure the range is clear before firing and while firing is in progress. The tow pilot may designate the firing aircraft/safety chase to do the range sweep.

14.6.2.2. Ensure target reel-out or deployment is done either at the gunnery range, enroute to the range after passing east of Highway 395, or over the PIRA. For Pt Mugu missions, perform target reel-out at the range.

14.6.2.3. Avoid populated areas when carrying or towing targets to or from the range. Cross all major highways as nearly perpendicular as practical. Flights to Pt Mugu may be made VFR for this purpose.

14.6.2.4. Require a chase aircraft to remain with the tow aircraft until the target and all cable are jettisoned or dragged off, or until the target is restowed. The firing aircraft may be used as chase.

14.6.3. Dart Targets:

14.6.3.1. Aircraft may takeoff on either runway.

14.6.3.2. When a mission terminates with the Dart deployed, jettison or drag off the Dart before departing the range, except if the target contains a scoring device. If the target appears stable and sound enough not to lose parts or drop off entirely, and the lakebed jettison/drag-off area is usable, return the Dart to Edwards for recovery of the scorer.

14.6.3.3. If a deployed Dart target is returned to Edwards it may be jettisoned, dragged off or, if in an emergency, landed according to para 14.7.

14.6.3.4. After a Pt Mugu mission jettison all Dart targets, including those with scorers, before leaving the range. If unable to jettison and fuel permits, advise Pt Mugu range control of the circumstances and contact Los Angeles ARTCC. Request a 1,000-foot block altitude for the return flight to Edwards. The firing aircraft will act as safety chase, and offset behind and above the Dart on the return flight.

14.6.4. Aerial Gunnery Tow System (AGTS) Targets:

14.6.4.1. Take off from either runway.

14.6.4.2. Make a straight-in, normal landing configuration approach/landing if the target fails to deploy.

14.6.4.3. Return deployed AGTS targets to Edwards if they are stable and structurally sound enough for the return trip. Primary target release will be in the Alpha Corridor over the Farm DZ; coordinates 34½ 47.40'N, 117½ 57.01'W. Tow aircraft ground track to the drop point will be by Rosamond Dry Lake after crossing Highway 58 and Rosamond Blvd at, or near a 90o angle at 5,000' MSL. At the south tip of Rosamond Dry Lake, make a descending turn to a heading of 075o and 3,100' MSL to line up with the drop area. Before the target release receive clearance into the Alpha Corridor and confirm the drop area is clear, usually by tow target recovery personnel (call sign Target Mobile).

14.6.4.4. If the target cannot be released, jettison the cable canister with the target over the farm, or make a straight-in approach landing on a suitable lakebed runway with the target deployed.

14.6.5. Low Cost Tow Target (LCTT):

14.6.5.1. Requires qualified reel operator in rear seat of tow aircraft.

14.6.5.2. Takeoff from either runway.

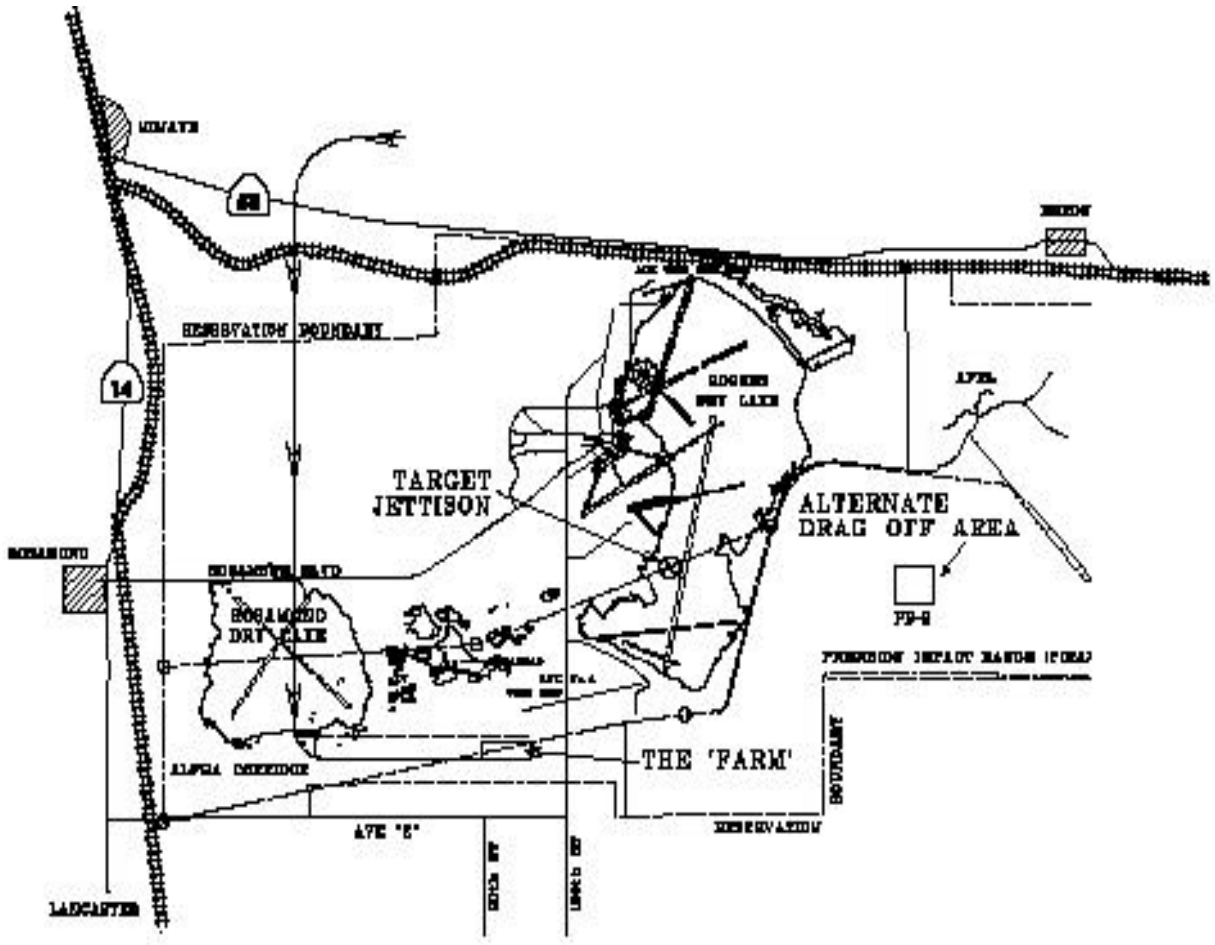
14.6.5.3. If the target is shot off or damaged to the extent that reel-in is not advisable, jettison the remaining cable/target over the appropriate range or the tow target jettison area.

14.6.5.4. If stable, reel-in the target and return to Edwards for a straight-in, 17-unit, one-half flap approach and landing.

14.6.5.5. If the target cannot be reeled in or jettisoned, it should be dragged off or returned to Edwards.

14.7. Target Jettison/Drag Off. (Fig 14-3)

Figure 14.3. Target Jettison/Dragoff/Dart Deployment Area.



14.7.1. If deployed targets are returned to Edwards, they may be jettisoned, dragged off, or if necessary, landed with as follows:

14.7.2. Primary tow target jettison area is the west side of Lakebed Rwy 17/35. Jettison at 3,500' MSL, or higher, if necessary due to cable length/target droop. Coordinate with tower.

14.7.3. The alternate jettison area is PB-8 within the PIRA. Prior coordination with SPORT is necessary.

14.7.4. Drag off the target in the areas listed above. A recommended technique for Dart drag off is to approach the drag off point at 250 KIAS in a five (5)o to 10o dive. Level off by 200' AGL. The target will usually impact within 1,000' of the level off point. Be aware several hundred feet of cable may remain attached to the tow aircraft after drag off.

14.7.5. If landing with a deployed target or with trailing cable, the tow pilot will inform CONFORM (304.0). The following procedures will apply:

14.7.5.1. Make a straight-in approach and land on a suitable lakebed runway. After landing, hold position until maintenance removes remaining cable.

14.7.5.2. If lakebed runways are unusable make a straight-in landing on Rwy 22. Tower will clear personnel and aircraft from within 1,000' of each side of the approach end. Remain at or above 4,300' MSL until passing the VORTAC. Make a steep approach and aim for touchdown on the paved overrun so that the target impacts on the lakebed.

Chapter 15

LIFE SUPPORT/G-INDUCED LOSS OF CONSCIOUSNESS (GLOC)

15.1. Ejection Seat Aircraft.

15.1.1. The minimum life support equipment required by all personnel flying ejection seat aircraft are:

15.1.1.1. Clothing. As a minimum, wear Nomex (or equivalent) coveralls, Nomex (or equivalent) gloves, and flight boots. Jungle boots with non-FOD soles are authorized. Identification tags will be carried, but need not be worn (do not wear around neck in ejection seat aircraft). Wear flight jackets when ground temperature at origin, destination, or enroute is 50o F or below.

15.1.1.2. Anti-exposure Suits. Aircrews flying over water will wear anti-exposure suits when required by MAJCOM Life Support Program regulations. Crewmembers flying the B-1, B-2 and B-52 aircraft are exempt from the anti-exposure suit requirement.

15.1.1.3. Anti-G Garments. Wear anti-G garments in aircraft so equipped on all missions intended or likely to encounter four (4) Gs or more any time during the flight. Some missions will likely exceed four (4) Gs, e.g., spins, handling qualities, dive bombing, aerial gunnery missions, or chase missions supporting such missions.

Note: Navy G-suits will not be worn in F-16 aircraft.

15.1.1.4. Survival Vest. Wear the survival vest (SRU-21/P) when the aircraft installed survival kit has been removed (that is, an instrumentation kit installed in place of the survival kit).

15.1.1.5. Life Preserver. Wear life preservers on all over water flights and to and from locations with over water approaches or departures.

15.2. Non-Ejection Seat Aircraft.

15.2.1. The minimum life support equipment required by aircrew members flying non-ejection seat aircraft are:

15.2.1.1. Clothing. Aircrews not flying missions IAW AFMCI 11-301 will as a minimum, wear Nomex (or equivalent) coveralls, Nomex (or equivalent) gloves, and flight boots. Jungle boots with non-FOD soles are authorized. In extreme cold weather aircrews may wear mukluks instead of flight boots. Identification tags will be carried but need not be worn. Wear flight jackets when the ground temperature at origin, destination, or enroute is 50o F or below. Aircraft commanders ensure crewmembers and passengers are properly clothed.

15.2.1.2. Life Raft. Equip aircraft with life rafts for all over water flights exceeding power-off glide distance from land. Equip multiplace rafts with a PRC-90 radio or equivalent.

15.2.1.3. Parachute. All personnel on helicopter flights will wear parachutes during paradrops from 5,000' AGL or higher. Parachutes are also required on planned helicopter missions above 10,000' AGL.

15.2.1.4. Life Preserver. Wear or have readily available life preservers for all crewmembers and passengers on over water flights.

Note: Helicopter aircrews wear life preservers on all over water flights when not within power-off gliding distance of land.

15.3. High Altitude Operations/Airdrops.

15.3.1. In addition to normal mission planning requirements, the following areas are unique to high altitude operations:

15.3.1.1. Oxygen Requirements:

15.3.1.1.1. Use oxygen as specified in AFI 11-206. When unpressurized operations at 18,000' MSL or above are planned, use pre-breathing procedures outlined in AFFTCI 11-2, Chapter 9. A physiological training officer/technician accompanies all unpressurized missions requiring pre-breathing. When the aircraft oxygen system does not provide sufficient oxygen or oxygen regulators for all personnel, or when the aircraft commander's MAJCOM regulations prohibit use of the aircraft oxygen system, install a supplemental oxygen console in the aircraft.

15.3.1.1.2. Portable Oxygen Requirements for airdrops:

15.3.1.1.2.1. For operations at 25,000' MSL or below, carry one (1) MA-1 portable oxygen unit equipped with A-21 regulators or equivalent for every two (2) people aboard. Equip the oxygen units with web carrying straps or canvas carrying bag.

15.3.1.1.2.2. For high altitude operations above 25,000' MSL, provide one (1) MA-1 portable oxygen unit equipped with A-21 or equivalent regulators for each person aboard. Equip the oxygen units with web carrying straps or canvas carrying bag.

Note: All airdrops above 25,000' MSL require a waiver to AFI 11-206.

****WARNING*****

Do not expose personnel to 30,000' MSL more than three (3) times every seven (7) days. A minimum of 24 hours must elapse between exposures.

15.3.2. Emergency Procedures. If any person experiences decompression sickness or unusual pain, the pilot will:

15.3.2.1. Abort the mission.

15.3.2.2. Begin a descent (determine the pressurization and descent by the type/degree of sickness or pain).

15.3.2.3. Proceed to the nearest base with qualified medical assistance.

15.3.2.4. Advise tower of the emergency, and request an ambulance and doctor meet the aircraft.

15.3.2.5. Upon landing, notify Command Post.

15.4. Experimental Aircraft.

15.4.1. Parachutes, personnel equipment, and survival kits on experimental aircraft without specific technical order guidance will be of the type and quantity consistent with those specified for similar operational aircraft. Project managers coordinate with AFFTC Life Support to determine specific requirements. Major Command (MAJCOM) Life Support and Air Force Life Support have final

approval of equipment. Configure contractor production aircraft with life support and survival equipment according to accepting command or program office directives.

15.5. Physiological Support Of High Altitude Unpressurized Flight.

15.5.1. General. Defines physiological support requirements, responsibilities, oxygen usage, and prebreathing requirements for high altitude air drops.

15.5.2. Oxygen Requirements:

15.5.2.1. Oxygen will be utilized according to AFI 11-206, General Flight Rules. If the aircraft-installed oxygen system does not provide sufficient quantity of oxygen or regulators for the crew and parachutists, or if the aircraft commander's MAJCOM regulations prohibit the use of the aircraft oxygen system, install a supplemental oxygen console in the aircraft. The console will provide sufficient oxygen regulators for all parachutists and crewmembers not accommodated by the normal aircraft system. When possible a physiological technician will accompany any mission requiring supplemental oxygen consoles and will be responsible for preflight and inflight operation of the consoles. The loadmaster will be responsible for securing the consoles prior to departure. When physiological training personnel are not required, the loadmaster will assume total responsibility for these consoles.

15.5.2.2. Pre-breathing. All personnel onboard during unpressurized operations at 10,000’ MSL or above will use oxygen. If oxygen is not available, personnel other than the pilot at the controls may operate at altitudes of 13,000’ MSL and below for periods not to exceed three (3) hours. When unpressurized drop altitudes are 18,000’ MSL or above, all personnel onboard will pre-breath at a pressure or cabin altitude below 10,000 feet using the following schedule:

UNINTERRUPTED PREBREATHING TIMES

DROP ALTITUDE	**AIRCREW AND SUPPORT PERSONNEL**	**PARACHUTIST**
At 18,000-25,000'	30 min	*30 min HALO/HAHO
Above 25,000-30,000'	45 min	30 min HALO
		45 min HAHO
Above 30,000-35,000'	60 min	60 min HALO/HAHO
Above 35,000'	75 min	75 min HALO/HAHO

*HALO/HAHO – High Altitude/Low Opening/High Altitude High Opening

15.5.2.3. All unpressurized operations at or above 25,000’ MSL require waivers to AFI 11-206. If MAJCOM regulations require more pre-breathing time, comply with their regulations. Pre-breathing will be started in order to be completed before ascending above 10,000’ cabin altitude. When pre-breathing is required before takeoff, a launch crew will perform the aircraft preflight duty. Any break in pre-breathing may nullify all time spent in pre-breathing and the period will be restarted or require an additional 10 minutes pre-breathing for each minute off of oxygen.

15.6. Physiological Training Officer/Technician Duties.

15.6.1. A physiological training officer/technician will accompany all missions requiring pre-breathing regardless of the number of loadmasters or type airdrop. They will monitor all personnel, oxygen equipment, and life support equipment. They will brief all personnel before the first mission on their duties and responsibilities, physiological problems that may be encountered in flight, importance of proper pre-breathing, effects of wind blast and cold air on exposed tissue, and any hand signals to be used in case of interphone failure. They will be on interphone while performing required duties and will carry a medical kit onboard each flight. The contents will include, but not be limited to, nasal decongestant spray, emergency medications, and supplies.

15.6.2. The physiological training officer/technician will keep accurate records on all crewmembers as to pre-breathing times, times at ambient pressure, and types of any symptoms experienced. Use the most expeditious manner to notify AFFTC/SEF, AFMC APT coordinator, and HQ USAF/SGPA of any physiological incident.

15.6.3. Emergency Procedures. If any of the following should occur the pilot will:

15.6.3.1. Decompression sickness (suspected).

15.6.3.1.1. Ensure individual is administered 100% oxygen.

15.6.3.1.2. Descend as soon as practical (determine pressurization and descent by the type and degree of sickness or pain).

15.6.3.1.3. Land at nearest suitable installation where medical assistance may be obtained.

15.6.3.1.4. Advise control tower of the emergency and request an ambulance and flight surgeon meet the aircraft.

15.6.3.2. Hypoxia/Hyperventilation

15.6.3.2.1. Ensure individual is administered 100% oxygen and cautioned to control rate and depth of respiration.

15.6.3.2.2. If problem is resolved the mission may continue, if not, follow steps in paragraph 15.6.3.1.2., 15.6.3.1.3. and 15.6.3.1.4. above.

15.6.3.2.3. Other - Unusual pain or problems, i.e., trapped gas, ears, sinuses, G.I. tract, teeth.

15.6.3.2.3.1. Determine nature and severity.

15.6.3.2.3.2. Maintain oxygen support as required.

15.6.3.2.3.3. If problem is resolved the mission may continue; if not, follow steps in paragraph 15.6.3.1.2. and 15.6.3.1.3. above.

15.7. Prevention Of G-Induced Loss Of Consciousness (GLOC).

15.7.1. Since pilot tolerance may vary from day to day, it is the pilot's responsibility to "knock it off" when fatigue or other factors make high-G maneuvers inadvisable. Further, aircrew members will notify their operations officer if they are scheduled for a mission they feel they are not fit to fly.

15.7.2. The USAFSAM GLOC model gives seven (7) G's as the limit for comfortable operations with a properly fitted G-suit and a proper Anti-G Straining Maneuver (AGSM). A good AGSM can increase G's tolerance as much as three point five (3.5) G's.

15.7.3. AGSM - This is a two-part task to maintain an elevated blood pressure. Both parts are done simultaneously and should be initiated prior to the G onset and continued until back at one (1) G.

15.7.3.1. Part 1 - INCREASED CHEST PRESSURE: Increase chest pressure by inflating the lungs with a maximum inhalation and then voluntarily contract the muscles in the chest and diaphragm without allowing any air to escape from the glottis (lower throat). Ideally, you should hold chest pressure for three (3) seconds followed by a quick, forced exhalation with another quick inhalation, then repeat the cycle. Holding the chest pressure less than three (3) seconds will cause fatigue and result in a lower than desired eye-level blood pressure. Holding the chest pressure for more than three (3) seconds decreases venous return to the heart which will result in a lower eye-level blood pressure due to decreased cardiac output.

15.7.3.2. Part 2 - MUSCLE TENSING: This requires isometric contraction of all skeletal muscles and pushes blood back from the pooling areas toward the heart.

15.7.4. G-suit - A well-fitted G-suit is essential to GLOC prevention. The G-suit will normally provide one (1) G increase in tolerance; however, failure to zip the side zippers will result in a two-thirds loss of G-suit protection. Ensure a proper G-suit fit, with zipped zippers, prior to flying high G maneuvers.

15.7.5. COMBAT EDGE: This equipment DOES NOT eliminate the need to perform a good AGSM; it does not provide higher G tolerance; and it does not prevent GLOC. It DOES, however, reduce the fatigue factor for sorties requiring repetitive AGSM's.

Note: The brain only has four to seven (4-7) seconds of oxygen reserve after onset of the first G maneuver; the brain may not have this oxygen reserve for subsequent maneuvers. Tissue must have time to fully re-oxygenate between maneuvers. GLOC will soon follow without proper straining maneuvers initiated prior to G onset and a well fitted G-suit. A long break from flying in the high G environment reduces your AGSM's efficiency and increases your personal risk to GLOC. If this break is due to illness the risk is even higher. Weight training can help GLOC resistance by allowing proper muscle straining for longer periods of time. Neck strengthening exercises will reduce the chance of neck strain or injury. A moderate weight training program should maintain strength in the major muscle groups for proper straining and a moderate aerobic program to maintain overall cardiovascular fitness and reduce fatigue.

15.7.6. G AWARENESS EXERCISE: All aircrews will perform the GLOC Prevention Procedures listed in GLOC briefing (Table A4-13) prior to exceeding load factor of five (5) G's. If you have not pulled seven (7) G's or greater within a week, build-up smoothly and incrementally to seven (7) G's.

15.7.7. GUIDELINES: The following guidelines are to be used when flying missions involving load factors greater than seven (7) G's. These are not goals for each sorties. Aircrew tolerance and experience are the overriding factors. Pilots and engineers should be sensitive to variances in day to day performance. Poor performance (inability for the pilot to achieve desired conditions) and fatigue (as sensed in pilot communications) may be signs that continuing the mission will not yield satisfactory data or may even result in unsafe operations. Exceptions should be approved through the Safety Review Board (SRB) process and documented on AFFTC 5028/5028b.

15.7.7.1. Altitudes - Use pull-up maneuvers to the maximum permissible for all high-G test points below 10,000 feet AGL. All missions requiring sustained high-G test points (greater than seven (7) G's for longer than five (5) seconds) below 5,000 feet AGL in other than pull-up maneuvers will be highlighted in the SRB package and on the test cards.

15.7.7.2. The following limits are considered the maximum permissible under optimum conditions:

15.7.7.2.1. BFM/ACM Engagements: Sorties with sustained high-G maneuvers will be limited to six engagements per flight.

15.7.7.2.2. Sustained high-G test points: These are typically performance or load turns where sustained high-G's are held for long periods (greater than seven (7) G's for five (5) or more seconds). There will be no more than eight (8) sustained high-G test points performed per mission.

15.7.7.2.3. Short duration high-G test points (greater than seven (7) G's for five (5) or more seconds): These are typically windup turns or loads points where sustained G's are not required. There will be no more than 16 short duration high-G test points performed per mission.

15.7.7.2.4. When short duration and sustained test points are combined, the limits will be prorated. For example, one (1) sortie may contain:

15.7.7.2.4.1. Two (2) sustained high-G test points (25% of the limit).

15.7.7.2.4.2. 12 short duration, high-G test points (75% of the limit).

15.7.7.3. Pilots and test conductors will discuss fatigue before and after each high-G test point before continuing.

15.7.7.4. Pilots will brief the chase and control room on specific words to define maneuver completion such as "test point complete." Failure to transmit will be considered an indication of GLOC and prebriefed actions will be initiated to aid the test pilot.

15.7.8. Aircrew Briefing.

15.7.8.1. GLOC briefing items (Table A4-13) will be included in all missions briefs where load factors greater than five (5) G's are anticipated.

Chapter 16

HELICOPTER OPERATIONS

16.1. General.

16.1.1. Non-helicopter qualified pilots, acting as crewmembers in AFMC helicopters, will not occupy the pilot (right) seat. The instructor pilot performs all critical maneuvers (takeoffs, landings, air refueling, mid-air retrievals) and takes control for emergency situations. There are no local helicopter checkouts for pilots who have not graduated from a formal military helicopter school. TPS pilots and test pilots Air Force Specialty Code (AFSC) 11E4 may make takeoffs/landings and occupy either seat when performing qualitative or short-term evaluation flights. Conduct these flights IAW AFI 11-202V1, as supplemented. A fully qualified helicopter IP, current in the MDS aircraft, will be in command and occupy a seat with a set of controls.

16.1.2. MAG 46 Det B will comply with all pertinent United States Marine Corps (USMC) and United States Navy (USN) directives in conjunction with applicable USAF directives. In the event differing policy guidance is identified, the conflict will be brought to the attention of 412 Operations Support Squadron and MAG 46 Det B for resolution.

16.2. Operating Procedures.

16.2.1. Do not operate helicopters above 2,800' MSL (500’ AGL) in the Edwards terminal area without tower approval, except where required to execute published instrument procedures or comply with other pertinent paragraphs in this instruction. Except where indicated, all turns are to the south or away from the main ramp.

16.2.2. During periods of light traffic the normal traffic patterns may be flown (see Fig 11-3).

16.2.3. Contact tower no later than 7 flying miles from the airfield with request. Depending on traffic, tower will determine where to position aircraft in the pattern.

16.2.4. When using the normal traffic patterns, aircrews shall maintain situational awareness due to the close proximity of the South Base pattern and the 2,800’ MSL altitude conflict.

16.2.5. Aircrews are not required to enter the Helicopter Conventional Pattern for landing but may upon request proceed direct for landing or enter the overhead for the main runway.

16.3. Overhead Traffic Pattern. (Fig. 16-1)

16.3.1. Aircrews shall request clearance for the overhead on initial contact with the tower using the terminology “Request overhead to (specify)”.

16.3.2. Arrivals from Highway 58 the primary overhead option is to the Helicopter Conventional Pattern and secondary to the main runway.

16.3.3. Main Runway:

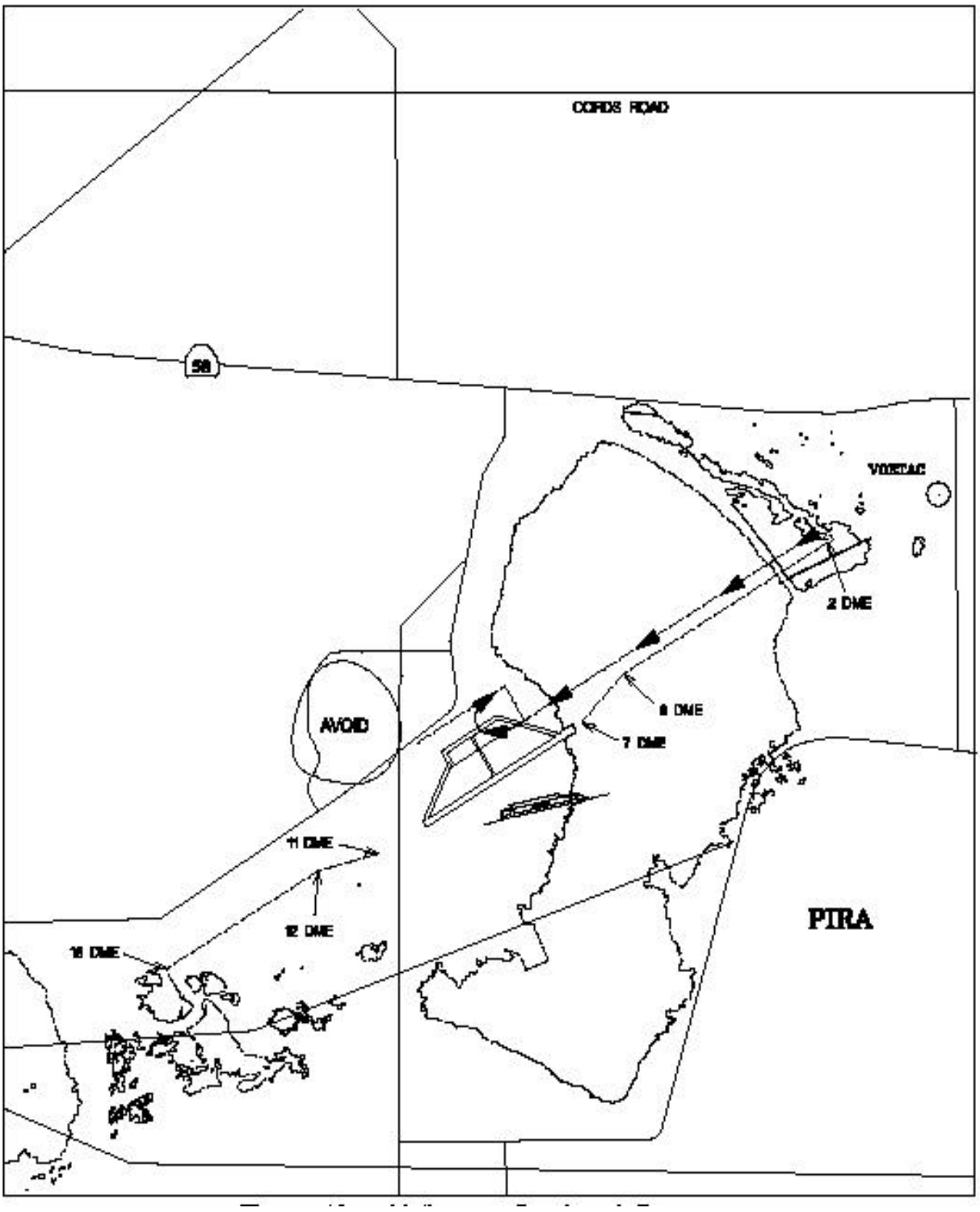
16.3.3.1. Rwy 22: Report a five (5) NM (2 DME) final. Offset 1,500’ north of runway centerline (approximately halfway between the runway and the tower flyby line) at 2,800’ MSL (500’ AGL). At six (6) DME execute a left turn so as to be aligned with centerline by seven (7) DME. Execute a left break over the numbers unless otherwise advised by the tower.

16.3.3.2. Rwy 4: Report a five (5) NM (15 DME) final. Offset 1,500’ north of runway centerline (approximately halfway between the runway and the tower flyby line) at 2,800’ MSL (500’ AGL). At 12 DME execute a right turn so as to be aligned with centerline by 11 DME. Execute a right break over the numbers unless otherwise advised by the tower.

16.3.4. Highway 58 arrival to the Helicopter Conventional Pattern:

16.3.4.1. Report a five (5) NM (2 DME) final. Offset so as to be aligned with the Showline at 2,800’ MSL (500’ AGL). Execute a right break abeam the numbers unless otherwise advised by the tower. Maintain 2,800’ MSL until turning baseleg over the lakebed.

Figure 16.1. Helicopter Overhead Patterns.



16.4. Helicopter Conventional Pattern. (Fig 16-2)

16.4.1. Advise tower of intentions no later than 7 flying miles from the airfield to enter the pattern or prior to departure.

16.4.2. Rwy 22: Right traffic. Downwind is flown between Rosamond Blvd. and Wolfe Ave. Maintain 2,800' MSL (500' AGL) until over the lakebed and initiating base leg turn.

16.4.3. Rwy 4: Left traffic. Downwind is flown over Rosamond Blvd. Crossing Lancaster Blvd. initiate turn to base leg. Maintain 2,800' MSL until initiating base leg turn.

16.4.3.1. If required for sequencing, orbit over the golf course. Do not overfly the small arms range when turning base leg.

Note: Wide patterns are used to provide separation from the Tower Flyby Line and the downwind leg.

16.5. Helicopter Landing/Takeoff Areas. (Fig 16-3)

16.5.1. Primary Areas

16.5.1.1. Save Pads - intersection of Taxiways B and F.

16.5.1.2. Base Ops - intersection of the main ramp and west taxiways.

16.5.1.3. Contractors Row Pad- north of the tower abeam Ramp 4.

16.5.1.4. Delta - between Contractor's Row and the entry point for Lakebed Rwy 6/24.

16.5.1.5. NASA - intersection of the north end of Contractor's Row and the south end of the NASA ramp.

16.5.1.6. Tow Lane Hotel – Tow lane extending westward from Base Operations (Hotel 1 & Hotel 2).

16.5.2. .Secondary Areas

16.5.2.1. Taxiway A (Alpha 1 & Alpha 2), Det 7 AFRL (see 16.8.5), and hospital landing pad.

Note: For multi-engine helicopters the primary landing/takeoff areas are Tow Lane Hotel, Taxiway Alpha and Save Pad. Pads on Taxiway Alpha and Tow lane Hotel are numbered outward from the main ramp.

16.6. Helicopter Pad Operat ions.

16.6.1. Follow the Helicopter Arrival/Departure routings as defined in paragraph 16.12. Make all landings and departures clear of designated traffic patterns. When landing or departing the main ramp, taxiways, or Tow Lane Hotel use caution for Tower Flyby Line traffic

16.6.2. Do not land or takeoff on contractors row adjacent to any engine run-up pad, thrust stand, or engine test facility (i.e. the area along contractors row between Taxiway Delta and Pad 18 thrust stand area used for entry/exit onto the lakebed). Overflight of these pads is limited to 2,450' MSL (150 feet AGL). Do not hover taxi past these pads if it will present a FOD potential for aircraft or engines runs.

16.6.3. Single engine helicopters are authorized to air-taxi to and from parking areas. Pilots employing air-taxi procedures must continually recognize the potential for FOD to aircraft resulting from such maneuvers. Helicopters capable of rolling taxi should do so to minimize FOD.

16.6.4. Taxiway Alpha/Tow Lane Hotel:

16.6.4.1. All operations to Tow Lane Hotel and Taxiway Alpha should be parallel to the landing surface to reduce foreign object damage (FOD). If wind, aircraft weight, or configuration requires other than a parallel landing use the minimum power required, and check for FOD due to rotor wash.

16.6.4.2. .Advise ATC of intentions prior to arrival/departure.

16.6.4.3. When arriving from the northeast, DO NOT proceed any closer to the main ramp than the show-line until passing the center taxiway. Use caution for the light poles on the south edge of the main ramp.

16.6.4.4. Operations to/from Rosamond, Buckhorn, or between the housing and dormitory area will circumnavigate the Anechoic Facility, align aircraft to Fitzgerald Blvd. or fly the helicopter downwind.

16.6.4.5. Lancaster departure or a departure to the south or southwest will circumnavigate the Anechoic Facility to the south when approved by ATC direct.

16.6.4.6. Departures to the northeast unless otherwise approved by ATC do not proceed any closer to the main ramp than the show-line. Follow the show line until the Rogers Dry Lake then proceed with the normal Helicopter routings.

16.6.5. Helicopters must receive authorization from tower before crossing the main Rwy 4/22. When requesting authorization to cross give specific location.

Figure 16.2. Helicopter Conventional Pattern.

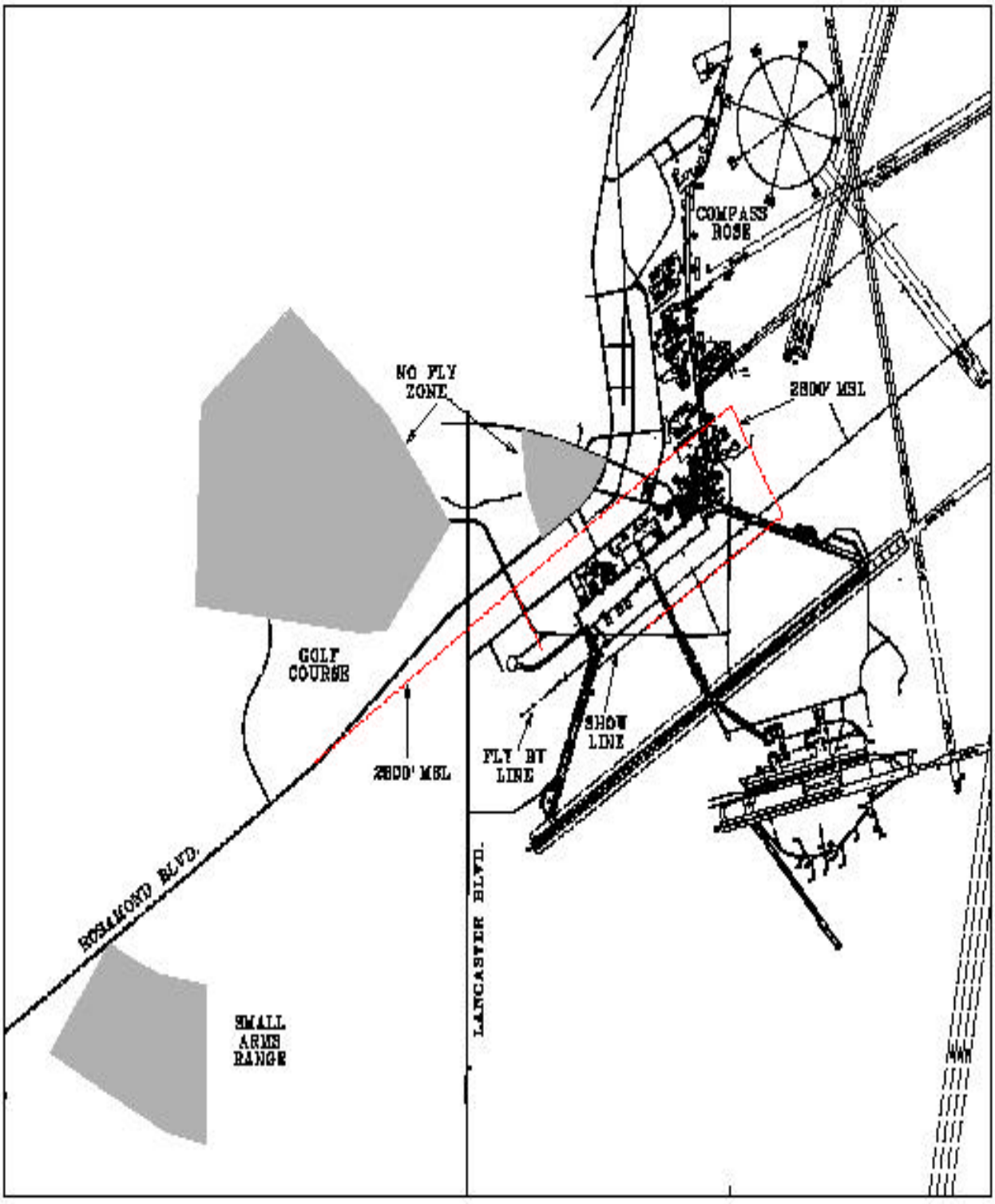
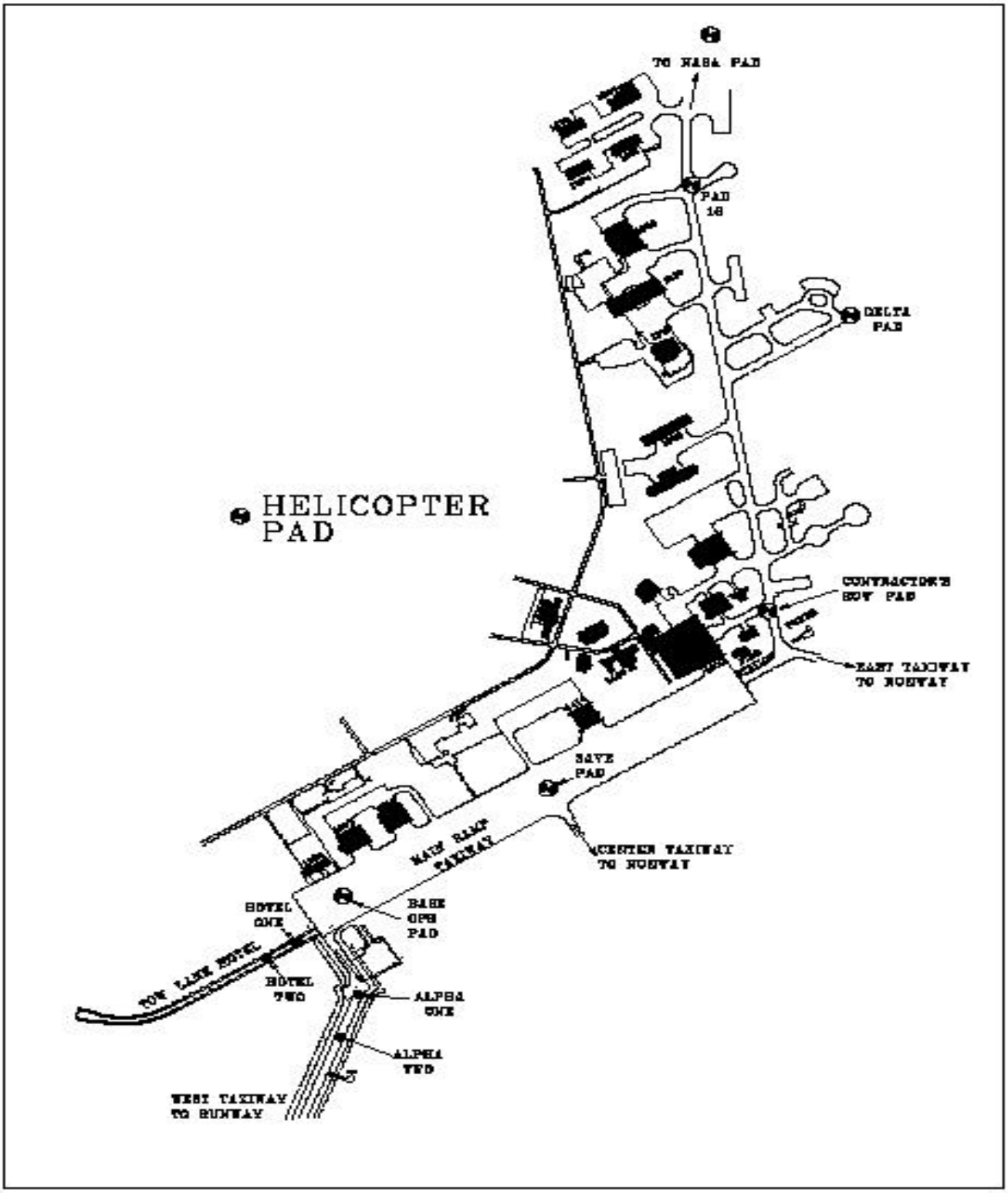


Figure 16.3. Helicopter Pads.



16.7. APPROVED AUTO-ROTATION AREAS.

16.7.1. South Base runway.

16.7.2. Main Base runway.

16.7.3. Rogers Dry Lake, provided the area is inspected before use. This area is not authorized for skid equipped helicopters.

16.7.4. North Base, provided intended landing point is over one of the concrete areas on the runway.

Note: Operator will coordinate with North Base prior to commencing operations.

16.8. Helicopter Off Airfield Landing A reas.

16.8.1. Helicopters are authorized to land at other than the primary and secondary landing areas (off airfield landing areas) when a mission requirement exists. Include the requirement and a description of the intended landing area on the mission briefing card or brief in the air to CONFORM. Under extenuating circumstances, the pilot may land at an off airfield area and debrief CONFORM upon return to base.

16.8.2. Helicopter operations at off airfield landing areas outside Edwards AFB boundaries will follow applicable service directives and FARs.

16.8.3. Before any off airfield landing and further operation in the off airfield area, make a thorough aerial/ground reconnaissance, including determination of safe approach/departure routes, landing area, wind speed and direction, power available and power required. The pilot has the option to select a more adequate landing area or abort the mission. When out of ground effect hovering is required or landing will be at a higher elevation than takeoff, compute the expected landing/hover performance. When wind direction cannot be determined by other means, drop smoke grenades before landing at any remote or unprepared site. Use approach procedures appropriate for the landing site, as specified in the pilot's handbook, for all approaches to off airfield areas.

16.8.4. South Base. When operating at South Base advise tower of intentions before entering the pattern. When a specific test requires the helicopter to be on a frequency other than tower frequency, notify the tower.

16.8.5. Det 7 AFRL.

16.8.5.1. Before takeoff, inform Base Operations of intent to land at the Det 7 AFRL with the nature of the mission, number of passengers, and ETA. Keep Base Operations advised of any delays or cancellations.

16.8.5.2. Base Operations, immediately upon receiving notification of flights to the Det 7 AFRL, notifies the Lab's Safety Operations Center of the helicopter’s ETA, mission, and number of passengers. Base Operations advises the Lab of all changes or cancellations.

16.8.5.3. Upon receiving notice of a helicopter landing at the Det 7 AFRL, the Lab’s Safety Operations Center notifies the Commander, Fire Department and First Aid Station.

16.9. Helicopter Operating Areas. (Fig. 16-4)

16.9.1. General. This section describes areas where helicopters can perform maneuvers and conduct training not conducive to the traffic pattern environment.

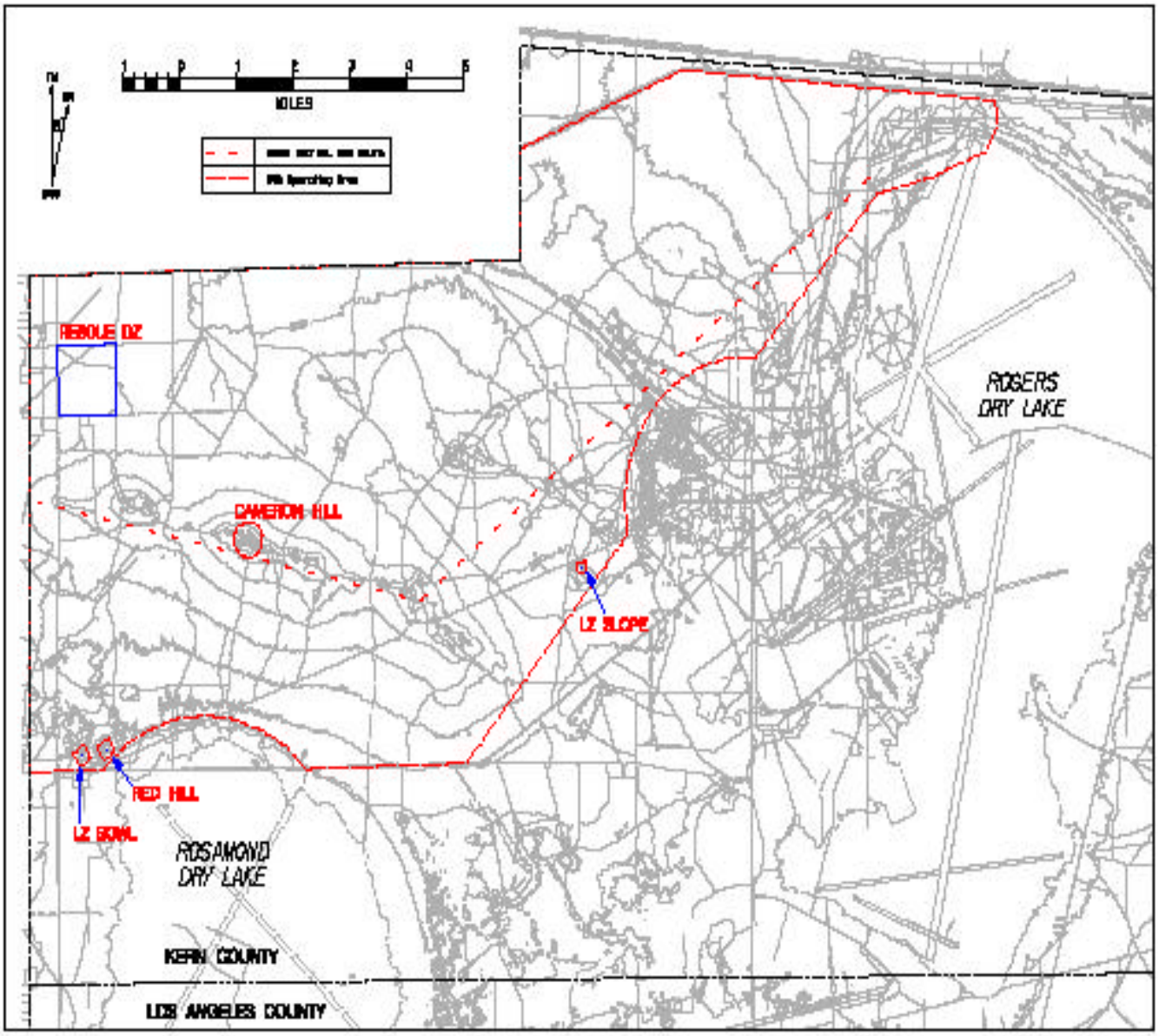
16.9.2. Functional Check Flight (FCF) and Maintenance Test Area. This area begins at the Edwards' western boundary and Rosamond Blvd. and excludes the Rosamond lakebed. From the bend in Rosamond Blvd. the southern boundary extends northeast, excluding the housing area, to encompass North Base. Thence west along the railroad tracks to the base boundary at 35½00'36"N, 117½59'15"W, thence along the northern and western boundaries of the Edwards' reservation to Rosamond Blvd. Flight operations are conducted from 2,800' MSL and above as approved by SPORT or JOSHUA.

16.9.3. Remote Operations Training. Remote Operations Training will be conducted on Edwards AFB remote operations training sites, the FCF area, and in remote training areas one (1), two (2), and three (3).

16.9.3.1. Remote Operations Training Sites (ROTS). The FCF area described above contains five (5) ROTS.

Red Hill LZ:	34½52'10"N 118½07'00"W	EDW 236/20
Cameron Hill:	34×54'41"N 118× 04'24"W	EDW 241/17.5
LZ Bowl:	34½52'05"N 118½07'27"W	EDW 235/20.5
LZ Slope:	34½54'25"N 117½58'10"W	EDW 234/12.5
Rescue DZ:	34×56'41"N 118× 04'24"W	EDW 247/18.5

Figure 16.4. Helicopter Operating Areas.



16.9.3.2. Remote Operations Training Areas: (Fig.16-5)

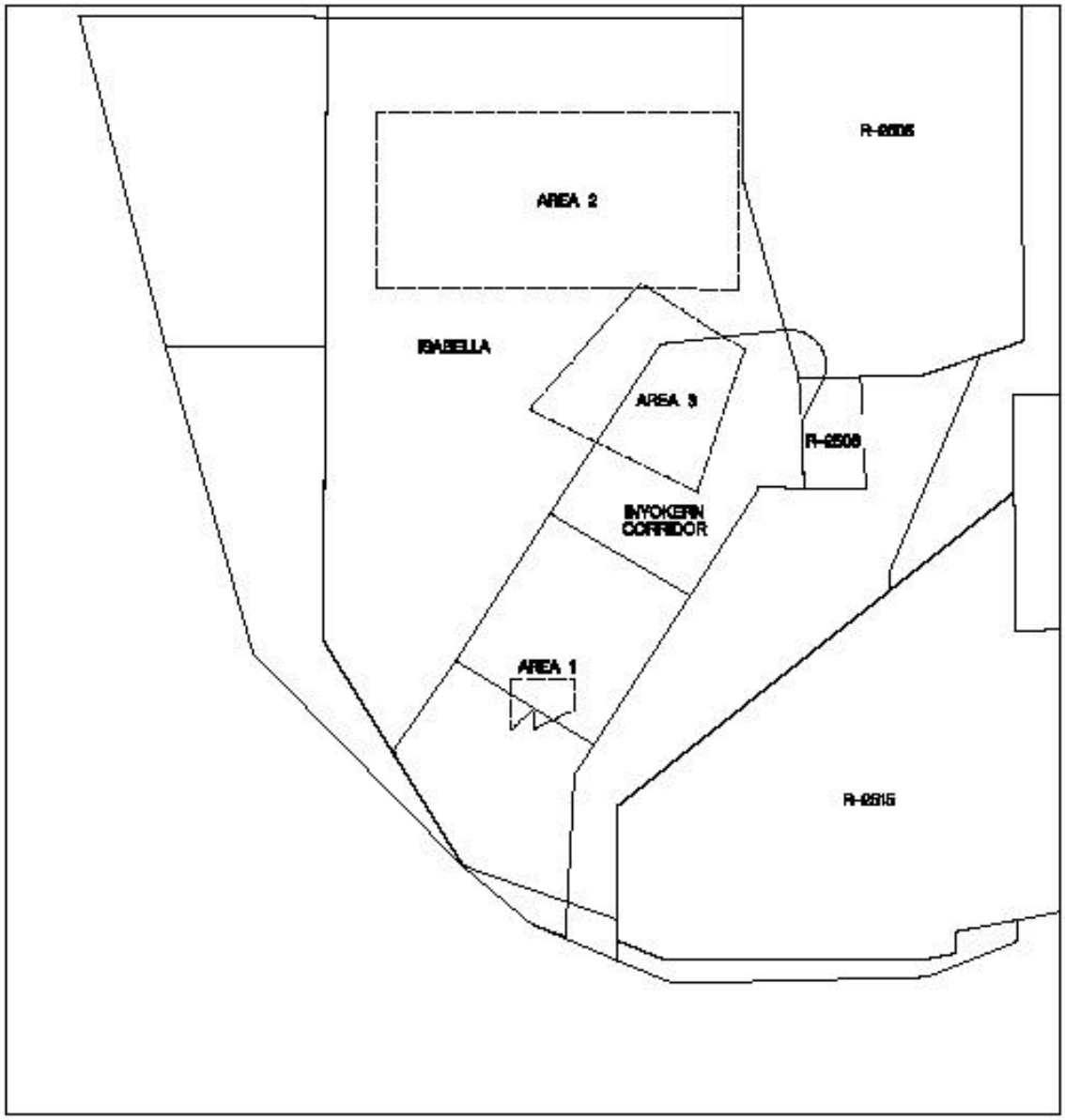
Area 1 35½11’50”N 118½16’18”W
35½07’30”N 118½16’18”W
35½07’30”N 118½14’06”W
35½09’15”N 118½14’06”W
35½09’15”N 118½09’55”W
35½11’50”N 118½09’55”W

Area 2 35½45’00”N 117½53’35”W
35½45’00”N 118½30’00”W
36½00’00”N 118½30’00”W
36½00’00”N 117½53’35”W
Excludes Domeland Wilderness Area.

Area 3 35½27’45”N 117½57’45”W
35½39’48”N 117½53’00”W
35½45’30”N 118½03’20”W
35½34’45”N 118½14’30”W

Note: Area 3 lies underneath the Bridge Area (Sfc-12,000) of the Inyokern Transition Area. Specific permission to operate within this area must be requested and received from JOSHUA during active periods .

Figure 16.5. Remote Operating Areas.



16.10. Night Vision Devices (NVD).

16.10.1. NVD operations will be conducted within the local flying area. Designated NVD landing areas are the same as for remote operations training. All low level (below 200' AGL) NVD training will be contained within surveyed remote training areas.

16.10.2. Notify the Control Tower/CONFORM prior to and upon completion of NVD operations within Class D airspace.

16.10.3. At the request of the aircrew and traffic permitting the Control Tower will reduce or turn off the airfield lighting to facilitate NVD operations.

16.11. Aircraft/Helicopter Rescue Su pport.

16.11.1. Make every effort to support all mountain rescues with a suitable escort aircraft with a qualified helicopter pilot aboard when available. The escort aircraft will:

16.11.1.1. Locate and evaluate the landing area.

16.11.1.2. Vector the helicopter to the area.

16.11.1.3. Monitor the rescue operations.

16.11.1.4. Escort the helicopter out of the mountains.

16.11.2. Make a full evaluation of the aircraft performance capabilities and the landing site before attempting a rescue. As a guide, the helicopter should be able to hover out-of-ground effect when the landing area is restricted and small, or when it is steeply sloped. A 10' hover capability is desirable in non-restricted landing areas.

16.12. 16.12.Helicopter Arrival/Departure R outes.

16.12.1. Helicopters are authorized the following low altitude arrival/departure routes during VMC. Before entering R-2515, contact SPORT (272.0 or 132.75) for route approval and flight following, if SPORT is unavailable contact Edwards tower. (see Fig 11-7)

Note: The Buckhorn, Lancaster, Alternate Rosamond and direct north/south arrival/departure routes require real time deconfliction with Alpha Corridor activity. Departures and arrivals to/from the east are normally not authorized when the PIRA is active.

16.12.2. Alternate Rosamond Arrival. Contact SPORT/Tower at the western edge of Rosamond Dry Lake or northwest of Bend-in-the-Road. Arriving from the southwest, proceed east remaining directly over the center of Rosamond Dry Lake. At the center of the lakebed proceed to Bend-in-the-Road and continue inbound over Rosamond Blvd. Arriving from the northwest proceed direct to Bend-in-the-Road. Continue to track directly over Rosamond Blvd. until one half (1/2) mile east of the Rod and Gun Club/Small Arms Range and advise Tower of intentions.

Caution: Be alert for Buckhorn and Rosamond arrivals/departure.

16.12.3. Alternate Rosamond Departure.

16.12.3.1. Main Base. 2,800' MSL to the Golf Course then as outlined in 16.10.3.3.

16.12.3.2. South Base. Fly heading 235o at 2,800' MSL. Crossing Lancaster Blvd., turn right heading 275o to intercept Rosamond Blvd then as outlined in 16.10.3.3.

16.12.3.3. Maintain one quarter (1/4) NM north of Rosamond Blvd. Contact SPORT abeam Golf Course. At Bend-in-the-road turn 45× to the southwest towards the center of Rosamond Dry Lake or 45× to the northwest towards Mojave.

***Caution:** Be alert for model airplanes north of Rosamond Blvd. on Rosamond Dry Lake.

16.12.4. Buckhorn Arrival. Altitude 2,800' MSL. Pilots shall not fly north of Avenue E (last major east/west surface street) without clearance from either SPORT or Tower. When cleared, proceed inbound one half (1/2) NM east of the Rosamond Dry Lake's east shoreline heading 360½ to intercept Rosamond Blvd. and fly east following the Rosamond arrival procedures for South or Main Base.

***Caution:** Be alert for Rosamond arrivals approaching Bend-in-the-Road.

16.12.5. Buckhorn Departure. Follow Rosamond Departure procedures from Main Base or South Bbase to Bend-in-the-Road. At the bend in Rosamond Blvd., fly heading 180½ over the east shore of Rosamond Dry Lake until clear of the restricted area.

Caution: Be alert for Rosamond arrivals at Bend-in-the-Road.

Note: Pilots flying the Buckhorn arrival or departure route are reminded to use caution when flying these routes due to the close proximity of the Small Arms Range (it is the pilot's responsibility to avoid overflying the Small Arms Range).

16.12.6. Lancaster Blvd. Arrival. Altitude 2,800' MSL. Pilots shall not fly north of Avenue E (last major east/west surface street prior to turning northbound on 120th) without clearance from either SPORT or Tower. When cleared, proceed within one quarter (1/4) NM east of Lancaster Blvd. until abeam General's Hill Radar to enter pattern at South or Main Base. Contact tower when instructed.

16.12.7. Lancaster Blvd. Departure. Departures from either Main or South Base will fly west of General's Hill to proceed outbound within one quarter (1/4) NM west of Lancaster Blvd. until clear of restricted area. Contact SPORT crossing or joining Lancaster Blvd.

16.12.8. Hwy. 58 West Arrival. (Not authorized for South Base. South Base use Rosamond Arrival.) Altitude 2,800' MSL; Contact SPORT at Mojave; Fly east remaining within one quarter (1/4) NM south of Hwy. 58 until intersection of Hwy. 58 and road to California City, contact tower when instructed. Fly heading 140o to north end of Taxiway E (Contractors' Row) for transition to applicable runway pattern.

16.12.9. Hwy. 58 West Departure. (Not authorized for South Base. South Base use Rosamond Departure.) From the north end of Contractors' Row fly heading 320o to intercept Hwy. 58. Proceed west within one quarter (1/4) NM north of Hwy. 58 maintaining 2,800' MSL. Contact SPORT joining Hwy. 58.

16.12.10. Hwy. 58 East Arrival. (Not authorized for South Base). Altitude 2,800' MSL. Contact SPORT at the intersection of U.S. 395 and Hwy. 58 (Kramer Junction/Four Corners). Proceed west within one quarter (1/4) NM north of Hwy. 58 until abeam Borax Mines settling ponds, then fly heading 230½ to intercept or maintain parallel track with Lakebed Rwy 23. Do not go beyond one half (1/2) NM south of Lakebed Rwy 23. At mid-lakebed, transition to applicable runway pattern (maintain 2,800' MSL). Contact tower when instructed.

16.12.11. Hwy. 58 East Departure. (Not authorized for South Base). Fly outbound track parallel to Lakebed Rwy 5, remaining within one half (1/2) NM south, to intercept Hwy. 58. Remain within one

quarter (1/4) NM south of Hwy. 58 east to U.S. 395, maintaining 2,800' MSL. Contact SPORT turning eastbound along Hwy. 58.

16.12.12. Alternate Hwy. 58 East Departure/Arrival for South Base when Lancaster and Buckhorn routes are unavailable).

16.12.12.1. Departure: Altitude 2,800' MSL. Fly east from South Base on Rwy 6/24 extended centerline. At east shore of Rogers Dry Lakebed, remain north of bend in Mercury Blvd., intercept north/south road (Rich Rd) west of Leuhman Ridge. Proceed north, maintaining right side of road until intercepting Hwy. 58. Fly one quarter (1/4) NM south of Hwy. 58. Contact SPORT joining Hwy. 58.

16.12.12.2. Arrival: Follow Hwy. 58 East arrival procedures until abeam Borax mines settling ponds, then fly southbound keeping to right of Rich Rd. Turn west abeam the Det 7 AFRL gate to the east and the 2,450' knoll on the drylake shoreline (approx. one and a half (1 1/2) miles north of Mercury Blvd.). Remain one half (1/2) mile north of both the bend in Mercury Blvd. and the extended centerline of South Base Rwy 6/24. Contact tower when instructed.

16.12.12.3. Northwest. Departure/arrival altitude 2,800' MSL. Use the same route from the Main Base to Hwy. 58 as the Hwy. 58 West departure/arrival (north end of the northwest departure/ arrival respectively terminates and commences at Hwy. 58). This route is for helicopter operations requiring transit to and from Main Base and Hwy. 58.

16.13. Lost Communications Proce dures.

16.13.1. Helicopters returning to Edwards with two-way radio failure shall utilize the Rosamond arrival for Light Aircraft (see para 11.9) or Highway 58 East/West arrival routes. Aircraft shall squawk 7600 and flash landing lights when entering Class D airspace. These arrival procedures ensures deconfliction from operations within the Alpha Corridor

16.13.2. Aircraft on the Rosamond arrival will maintain 500’ AGL until over Rogers Dry Lake and enter a right hand holding pattern over the Compass Rose if a Green Light is not received from the tower.

16.13.3. Aircraft using the Highway 58 arrival will maintain 500’ AGL and enter a right hand holding pattern over the Compass Rose if a Green Light is not received from the tower.

Chapter 17

CROSS-COUNTRY PROCEDURES

17.1. Cross-Country Mission Authorization.

17.1.1. Record requests and approvals of all proficiency cross-country flights on AFFTC FM 5042. 412 OG/CC is the approval authority for cross-country and out-and-back flights. Schedule flights through normal scheduling channels. Requesters ensure cross-country requests meet the following:

Note: See AFI 11-206, AFFTC Sup 1 for DFO approval to file into any civilian airfield where landing fees are assessed.

17.1.1.1. Submitted as required in AFFTCR 55-15 before intended departure (to meet Wing scheduling agenda).

17.1.1.2. Airdromes meet criteria in Table 17-1. Wavier authority for runway length requirements in Table 17-1 is the squadron/unit commander.

AIRCRAFT	MIN RWY LENGTH	CABLE f DESIRED
B-1	10,000”	NO
B-2	8,000’	NO
B-52	10,000’	NO
C-12	4,000’ d	NO
C-17	3,000’ g	NO
C-130	5,000’ e	NO
C-135B/C/E/R/T	7000’	NO
C-141A	6000’	NO
EC-18B/D	7,000’	NO
F-15	10,000’ a	YES
F-16	8,000’ a, b	YES
F-22	TBD	TBD
F-117	12,000’ c	NO
KC-10	7,000’	NO
T-38	8,000’	NO
T-39	6000’	NO

Remarks.

a. 8,000’ with cable.

b. Need potential parking area for hydrazine containment

c. Compatible barrier required, 10,000’ with compatible barrier

d. 5000’ for touch and goes.

e. 3,000’ for short field landings

f. Arresting cable not mandatory

g. Takeoff – Rwy length must be equal to critical field length.

Landing –3/4 flap landing, minimum rwy length is computed landing distance with idle reverse.

- full flap landing, minimum rwy length is computed ground roll with maximum reverse plus 500’.

17.1.2. Changes. Aircraft commander (AC) forwards any changes to the itinerary on the Daily Flight Schedule or AFFTC FM 5042 to 412 OSS/OSCS Current Operations or Command Post, (as appropriate) before departure from home station. The AC keeps Command Post advised of all arrival/departure changes to enroute stops while aircraft is off-station (para 17.4.).

17.2. Cross-Country Mission Planning.

17.2.1. A cross-country mission is any mission that includes a full stop landing at other than Edwards. Commanders may waive the requirements of this paragraph for missions where they are clearly impractical or unnecessary (e.g. classified missions, a full stop landing at China Lake or Palmdale, etc.).

17.2.2. ACs review weather briefing and flight planning with their commander or designated representative. File AF FM 70 or command approved substitute for the first leg of the mission as the mission card for the entire mission. For T-38 missions, the AF FM 70 remarks section contains the temperature at the planned flight level and the minimum recommended Mach number at that flight level. The commander or designated representative initials AF FM 70 to indicate approval and accomplishment of the weather and flight planning review.

17.2.3. When refueling at non-USAF installations, follow applicable USAF aircraft checklists and technical orders as much as possible. Naval airfields do not require refueling vehicles to be grounded. The minimum requirement for USAF aircraft being refueled by other than USAF personnel is to ground the aircraft and bond the aircraft to the refueling vehicle. This requirement also applies to hydrant refueling.

17.2.4. A current list of AVFUEL and AVOIL into-plane contractors is available to aircrews in the flight planning room at Base Operations or call the DSN number listed in the IFR Supplement. When planning travel to non-DOD locations and using commercial vendor fuel, take the following actions:

17.2.4.1. Check the list of AVFUEL and AVOIL into-plane contractors.

17.2.4.2. Use listed vendors when available.

17.2.4.3. You can use a vendor's purchase order or invoice in lieu of AF FM 315, USAF AVFuels Invoice, to purchase fuel. DO NOT sign both a vendor's purchase order/invoice and an AF FM 15 unless they are clearly marked to indicate duplicate forms were prepared. Turn in completed forms at maintenance debriefing immediately after return to Edwards.

17.3. Airspace Scheduling.

17.3.1. The following procedures are to be used for cross country, out-and-back, or for flights conducted in part outside of R-2508 (round robins) requiring use of DD Form 175, Military Flight. This process will clarify airspace scheduling procedures upon departure or RTB.

17.3.2. Aircraft from Edwards or AF Plant 42 departing or arriving on a DD Form 175, not requiring SUA, will only list DD Form 175 in the Edwards Scheduling System (ESS) as the sole resource. No airspace needs to be scheduled.

17.3.3. If you require SUA on departure or RTB list airspace requirements with associated altitude and time within the ESS or through CCF outside normal duty hours. Do not list DD Form 175.

17.3.3.1. Center Scheduling hours of operation are 0600-1700 LcL, Monday through Friday. Outside these hours and on weekends and holidays contact the CCF (pager: 800-805-2851). When SUA has been scheduled, pilots can expect to receive a Pancho Two or a modified clearance (i.e. Cleared Isabella (excludes Inyokern Transition Area during active times) and R-2515 at and below altitude) depending upon specific airspace requirements.

17.3.4. The scheduling process outlined above is required for either weekdays, weekends or holidays. This ensures airspace requirements are in place when you depart or arrive at the airspace boundary. The JOSHUA maintains airspace requirements for 30 minutes prior and up to 60 minutes after your ETA. If you have experienced a delay, which is outside this time frame, contact CCF to update your ETA with JOSHUA.

17.3.5. The R-2508 Complex, associated MOA's and R-2515 normally will not be scheduled on weekends and holidays for this purpose.

17.3.6. Aircrews will follow the above procedures to ensure required airspace requirements are available either upon departure or RTB.

17.4. Cross-Country Postflight Procedures.

17.4.1. Contact 95 ABW/CP (Command Post) at your destination and at each stopping point on your cross-country flight. Use DSN 527-3040, commercial collect, (805) 277-3040, California, or (800) 585-1216. Pass the following information:

17.4.1.1. Aircraft type, tail number, call sign.

17.4.1.2. Aircraft maintenance status.

17.4.1.3. Location/arrival information/proposed departure time/destination/hours logged.

17.4.1.4. Any emergency or incident.

17.4.1.5. Phone number to contact aircraft commander.

17.4.2. When first aware, inform 95 ABW/CP when you will be more than plus or minus one (1) hour from proposed Edwards return time.

17.4.3. If requiring maintenance assistance beyond the capability of the cross-country location, coordinate requirements with 412 TW/LGLOM MOC at DSN 527-2949/3143. If using commercial phone have CP transfer call to the MOC. Provide a telephone number where you may be reached. The maintenance senior controller will advise as soon as possible of support arrangements.

Chapter 18

OVERWATER AND FOREIGN MISSIONS

18.1. General.

18.1.1. In addition to the cross-country requirements of Chapter 18, this chapter has information to assist in conducting overwater and foreign missions. Flight Test Squadrons whose missions require continual overseas deployments may publish squadron Operating Instruction (OIs) to establish procedures for these operations.

18.2. Mission Assignment.

18.2.1. Designate the aircraft commander (AC) and aircrew without delay to allow adequate time for planning and collecting information necessary to get the required foreign clearances.

18.3. Mission Coordination.

18.3.1. The AC or designated representative coordinates with the appropriate organization on the following: itinerary, Foreign Clearance Guide (FCG) requirements, flight planning requirements, routing (see appropriate FLIP documents), and compliance with the required foreign operating and military procedures. Immunization, diplomatic landing/overflight, visa, passport, quarters, clothing, etc. requirements are included in the FCG. Where appropriate, the AC should request and receive an intelligence briefing on the countries to be visited.

18.4. Overseas Clearance.

18.4.1. The Flight Test Squadron Commander and the AC, prepare and send all messages requests for overseas clearances IAW the FCG and AFI 11-401, as supplemented.

18.5. Use Of Port Of Entry (POE).

18.5.1. The FCG requires all aircraft arriving from a foreign destination to process through an officially designated Port of Entry (POE). Edwards AFB is designated a special POE, and does processing when Base Operations (412 OSS/OSAM) has advance notice of arrival and customs requirements for both military and civilians. A minimum of 24 hours notice is required. If foreign nationals are onboard, 72 hours prior notification is required.

18.6. Overseas Crew Briefing.

18.6.1. The aircrew receives an overseas briefing conducted by the AC or mission commander before departing home station. See Attachment 4 Table A4-14 for minimum briefing items.

18.7. Flight Progress.

18.7.1. The aircrew will monitor fuel burn rate against planned and evaluate their progress at pre-planned decision points for possible diversion.

18.8. Arrival/Departure Messages.

18.8.1. All aircraft operating outside the Continental United States (CONUS) send (phone, fax, autodin message) arrival/departure messages to 95 ABW/CP (Command Post). Command Post will ensure information is passed to 412OSS/OSCS and owning units' operations desks. Messages include the following information:

18.8.2. Aircraft type, serial number and present location.

18.8.3. Arrival date and Zulu time at present location.

18.8.4. Departure date and Zulu Estimated Time of Departure (ETD) from present location.

18.8.5. Destination and Zulu ETA of next landing.

18.8.6. Maintenance status.

18.8.7. Additional remarks, as required (e.g. crew location during RON with phone number)

18.9. Intercept.

18.9.1. The AC may request an intercept on an overwater mission within two (2) hours of a suitable landing field when the aircraft has an emergency or an inoperative engine. When more than two (2) hours from a suitable landing field, the AC will request an intercept and escort.

18.10. Customs, Immigration And Agriculture Inspections.

18.10.1. At those stations where Federal or local inspections are required, the AC is responsible for aircrew and passenger compliance. The flight steward, loadmaster or flight engineer normally has the necessary clearance forms and assists the passengers in filling them out.

18.11. Aircraft Disinsectization.

18.11.1. Responsibility. The AC either performs the task or personally directs aircrew personnel while they disinsect. In either case, the AC certifies disinsectization on Customs Form 7507, General Declaration (Outward/Inward).

18.11.2. When to disinsect. Disinsect all aircraft immediately before the last takeoff before entering:

18.11.2.1. The US or its possessions from a foreign port between 35½N and south latitudes. Aircraft landing in the part of the US north of 35½N are do not require disinsecting unless the aircraft will proceed immediately from that airfield to one in the US located south of 35½N. As an emergency measure, the US Public Health Service may require aircraft disinsectization not provided for above.

18.11.2.2. A foreign area according to the requirements of the country concerned or of the USAF. (See USAF FCG or individual country requirements.)

18.11.3. How to disinsect. Required spraying time is based on the dispersal rate of 10 seconds per 1,000 cubic feet of space to be sprayed. Use the following aerosol formulations and procedures to disinsect aircraft.

18.11.3.1. Formulations:

18.11.3.1.1. Insecticidal Aerosol G-1152, Federal Stock Number (FSN) 6840-766-9631 (MIL-I-51238).

18.11.3.1.2. Pyrethrum/Tropical Aerosol G-1707, FSN 6840- 152-0050.

18.11.3.2. Procedures:

18.11.3.2.1. Direct the nozzle toward the ceiling of the compartment or space being sprayed. Do not apply the spray against any plastic surface or allow spray to wet the surface.

18.11.3.2.2. Spray the spaces inaccessible from within the aircraft including baggage compartment, wheelwell, and other similar spaces after completely loading fuel, baggage, cargo and passengers.

18.11.3.2.3. Spray the cabin, cockpit and other spaces accessible from within the aircraft after the crew is on board and all doors, windows, hatches and ventilation openings are closed.

18.12. Border Clearance.

18.12.1. The AC is responsible to international border clearance agencies for completing all required customs, agriculture, immigration and public health service documents. Although this is normally done by the manifesting agency, the AC must ensure:

18.12.2. Crew members/passengers have in their possession current passports and valid visas, if required.

18.12.3. Crew members/passengers are properly immunized for flight destination areas and each person has a current immunization certificate.

18.12.4. Cargo entry documents are in proper order.

18.12.5. Aircraft departs or enters the US through an air base where it can get border clearance.

18.12.6. Border clearance for aircraft, cargo, passengers, crew members and baggage is obtained, if required, before takeoff to a foreign area or when departing from the landing airport after arrival from a foreign area.

18.12.7. Aircraft is sprayed when required.

18.12.8. Enroute to the US, a designated crew member distributes personal customs declarations to all passengers/ crew members, briefs passengers on customs regulations, and prepares/compiles necessary border clearance forms for the AC's signature.

18.12.9. Enroute to the US, the appropriate agency at the intended landing base is notified of any change in ETA to ensure border clearance ASAP after landing.

18.13. Obeying Us Customs Laws.

18.13.1. The following information is an aid for properly declaring all goods imported into the US.

18.13.2. Importing goods for another does not relieve the person bringing the items into the US of the legal responsibility to follow Customs laws and requirements.

18.13.3. All packages and parcels brought aboard aircraft must be clearly marked with the owner's identity.

18.13.4. The AC turns over any item requiring Customs inspection or clearance not made promptly available by the owner to US Customs authorities.

18.13.5. USAF personnel must not attempt to import more than they are specifically authorized by law. Use particular care when USAF aircraft are used and passengers are carrying items to be declared or accounted for. Any violation of the law involving USAF aircraft, regardless of the passenger's affiliation, can be serious and harmful.

18.13.6. Each individual in the Air Force, regardless of rank or position, must comply fully with the letter and spirit of US Customs laws. Individuals must declare any item requiring Customs inspection. The AC must ensure every crewmember/passenger is aware of this responsibility and the requirement to follow the law. Violators can expect prompt disciplinary action.

18.14. Customs Procedure.

18.14.1. Documentation for Arriving/Departing Aircraft:

18.14.1.1. Outbound - No requirement.

18.14.1.2. Inbound - Provide the Customs Inspector the following:

18.14.1.2.1. One copy of Customs Form 7507 showing all aircrew names, aircraft itinerary and all other pertinent information. The AC signs this form.

18.14.1.2.2. One legible copy of all manifests.

18.14.1.2.3. Individual crew declaration, Custom Form (CF) Form 6059B, US Customs Accompanied Baggage Declaration.

18.14.1.2.4. One (1) CF 6059B for each passenger on board. If you have more than $1,400.00 in goods, you must list each article and declare dollar amounts on the front of the form. The declaration must be signed and must show a current mailing address so the individual may be billed for duty when necessary.

18.14.2. Advise passengers to declare all purchases of foreign goods made while abroad upon reentry. Passengers pay duty on any purchases in excess of the allotted free entry authorized by US Customs regulations if the amount of purchases and the quantity of alcoholic beverages authorized free entry inbound are in current US Customs regulations. The amounts and quantity can vary according to areas of departure; therefore, passengers must be made aware of the current regulations.

18.14.2.1. For personnel entitled to Public Law 126 and Section 54.2 of the Customs regulations, which is for free entry privileges for a period of duty exceeding 140 days out of the US, attach a copy of the orders ordering them back to the US.

18.14.2.2. Upon arrival in the CONUS, a Customs representative meets the aircraft, picks up all declarations, and examines all baggage and cargo.

18.15. Immigration Procedures.

18.15.1. Outbound. Prepare two (2) copies of Immigration form DJ 94, Immigration and Naturalization Service Arrival/Departure Record, on each civilian passenger. Deliver the duplicate copy to the designated Customs and Immigration official, and give the original copy to the civilian passenger.

18.15.2. Inbound. Immediately notify Customs and Immigration of any non-DoD employed civilian passengers on board. Detain the passengers at the base until proper Customs and Immigration officials arrive to clear them, or until authorization to release them is received (telephone, FAX, etc.).

18.15.2.1. If an aircraft is carrying only US military passengers and Crew members, Immigration requires no documentation.

18.15.2.2. If an aircraft is carrying foreign nationals, civilian passengers or civilian Crew members, the AC submits the following documents to the Customs Inspector for Immigrants:

18.15.2.2.1. One (1) copy of the passenger manifest.

18.15.2.2.2. One (1) copy of the crew list, if any Crew members are civilians.

18.15.2.2.3. One (1) copy of Immigration form DJ-94 for each civilian on board.

18.16. Agriculture Procedure.

18.16.1. Outbound. No requirements.

18.16.2. Inbound:

18.16.2.1. Prohibited items are fresh fruits, vegetables, meats (fresh, chilled or frozen) from cloven-footed animals, plants, cut flowers, soil and live zoological specimens. Examine all baggage and equipment for fruits, plants, meats, or other agricultural materials and live insects or soil.

18.16.2.2. When agricultural quarantine regulations or USAF directives require, all aircraft receive an aerosol treatment before departing foreign onload stations.

18.16.2.3. An agricultural inspector inspects the aircraft after all passengers disembark. Remove all whole fruits, vegetables, eggs, milk and meats (except fish or cooked fowl) by or under the supervision of an agricultural inspector at the first arrival airport. Do this before any ground servicing. This does not apply to flights originating in Canada, Hawaii, Puerto Rico, and U.S. Virgin Islands with an agricultural clearance from that station.

RICHARD V. REYNOLDS, Major General, USAF
Commander

Attachment 1

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

Abbreviations and Acronyms

AA—Anti-Aircraft

ABW—Air Base Wing

AC—Aircraft Commander

ACM—Air Combat Maneuvering

AEI—Aerospace Equipment Instruction

AF—Air Force

AFB—Air Force Base

AFFTC—Air Force Flight Test Center

AFFTCI—Air Force Flight Test Center Instruction

AFFTCR—Air Force Flight Test Center Regulation

AFI—Air Force Instruction

AFGE—Air Force Government Employees Union

AFM—Air Force Manual

AFMC—Air Force Material Command

AFMCI—Air Force Material Command Instruction

AFMCMAN—Air Force Material Command Manual

AFSC—Air Force Specialty Code

AFTO—Air Force Technical Order

AGE—Aerospace Ground Equipment

AGTS—Aerial Gunnery Tow System

AGSM—Anti-G Straining Maneuver

AGL—Above Ground Level

AOF—Airfield Operations Flight

AR—Air Refueling

ARIA—Advanced Range Instrumentation Aircraft

ARM—Anti-radiation Missile

ARTCC—Air Route Traffic Control Center

ATC—Air Traffic Control

ATCAA—Air Traffic Control Assigned Airspace

Atch—Attachment

ATIS—Airport Terminal Information Service

Ave—Avenue

AWDS—Airmen Weather Distribution System

BAM—Bird Avoidance Model

BASH—Bird Aircraft Strike Hazard

BFM—Basic Fighter Maneuvers

Blvd—Boulevard

BTY—Beatty VORTAC

BWW—Basic Weather Watch

CAT—Category

CATM—Combat Arms Training and Maintenance

CC—Commander

CCF—Central Coordinating Facility

CCW—Counterclockwise

CES—Civil Engineer Squadron

China Control—Callsign China Lake Military Radar Unit

COMSEC—Communications Security

CONUS—Continental United States

CP—Command Post

CS—Communications Squadron

CTF—Consolidated Test Force

DAG—Daggett VORTAC

DAGRAG—Dual air-to-ground Range

DB—Dive Bombing

DBRITE—Digital Brite Radar Indicator

DD—Defense Department

Det—Detachment

Det 7, AFRL—Detachment 7, Air Force Research Laboratory

DFO—Director of Flight Operations

DFRC—Dryden Flight Research Center

DME—Distance Measuring Equipment

DO—Operations Officer

DoD—Department of Defense

Downfall—Callsign Edwards PIRA facility

DR—Deficiency Reports

DSN—Defense Switched Network

DR—Deficiency Report

DTP—Detailed Test Plan

DZ—Drop Zone

E—East

Echo Control—Callsign R-2524 ECR

ECR—Electronic Combat Range

EDW—Edwards Air Force Base (VORTAC)

EHF—Shafter VORTAC

ELT—Emergency Locator Transmitter

EMS—Equipment Maintenance Squadron

EOD—Explosive Ordnance Disposal

EPU—Emergency Power Unit

ESS—Edwards Scheduling System

ETA—Estimated Time of Arrival

ETD—Estimated Time of Departure

ETE—Estimated Time Enroute

FAA—Federal Aviation Administration

FAD—Force Activity Designator

FAF—Final Approach Fix

FAR—Federal Air Regulations

FCIF—Flight Crew Information File

FCG—Foreign Clearance Guide

FCF—Functional Check Flight

FCIF—Flight Crew Information File

FLTS—Flight Test Squadron

FL—Flight Level

FLIP—Flight Crew Information Publication

FM—Form

FOD—Foreign Object Damage

FRI—Flight Research, Inc.

FSS—Flight Service Station

FTS—Flight Termination System

GFS—Goffs VORTAC

GLOC—G-Induced Loss of Consciousness

GMN—Gorman VORTAC

GP—General Planning

GSA—General Services Agency

HADB—High Altitude Dive Bomb

HAS—High Angle Strafe

HF—High Frequency

HQ—Headquarters

Hwy—Highway

IAF—Initial Approach Fix

IAW—In Accordance With

ICAO—International Civil Aviation Organization

IFR—Instrument Flight Rules

ILS—Instrument Landing System

IMC—Instrument Meteorological Conditions

IP—Instructor Pilot

IR—IFR Military Training Route

JON—Job Order Number

JOSHUA—Callsign FAA TRACON

Kts—Knots

KIAS—Knots Indicated Airspeed

KTAS—Knots True Airspeed

L—Local

LAB—Low Angle Bombing

LALD—Low Angle/Low Drag Bombing

LAS—Low Angle Strafe

LCTT—Low Cost Tow Target

LD—Lay Down

L/D—Low Lift over Drag

LG—Logistics Group

LL—Low Level

Mag—Magnetic

MAG—Marine Air Group

MAJCOM—Major Command

MHV—Mojave Airport

Min—Minute

MIPR—Military Interdepartmental Purchase request

MOA—Memoranda of Agreement

MOC—Maintenance Operations Center

MOS—Military Operation Specialist

MOU—Memoranda of Understanding

MP—Mission Pilot

MRU—Military Radar Unit

MSL—Mean Sea Level

MTR—Military Training Route

N—North

NAD-27—North American Datum 27

NASA—National Aeronautical & Space Adminstration

NAVAID—Navigational Aids

NAWCWPNS—Naval Air Warfare Center Weapons Division

NE—Northeast

NID—China Lake (TACAN)

NLT—No Later Then

NM—Nautical Miles

NOTAM—Notice to Airmen

NORDO—NO RADIO

NTC—National Training Center (Ft Irwin)

NTPS—National Test Pilot School (Mojave)

NW—Northwest

NVD—Night Vision Devices

OAL—Coaldale VORTAC

OBO—Official Business Only

ODO—Operations Duty Officer

OG—Operations Group

OI—Operating Instruction

OIC—Officer in Charge

Oplan—Operations Plan

OPREP—Operations Report

Ops—Operations

OPSEC—Operations Security

OSS—Operations Support Squadron

PB—Precision Bomb

PE—Project Engineer

PIC—Pilot in Command

PID—Program Introduction Document

PIRA—Precision Impact Range Area

PMD—Palmdale VORTAC

POE—Port of Entry

PST—Pacific Standard Time

PTD—Pilot to Dispatcher

PTV—Porterville VORTAC

RADFAG—Radar Fidelity and Geometric Range

RCF—Radar Control Facility

RCO—Range Control Officer

RCR—Runway Condition Reading

R&M—Reliability and Maintainability

RMCC—Ridley Mission Control Center

ROA—Remotely Operated Aircraft

ROTS—Remote Operations Training Site

RPA—Remotely Piloted Aircraft

RPV—Remotely Piloted Vehicle

RRS—Reduced Runway Separation

RSC—Runway Surface Condition

RSO—Range Safety Officer

RTB—Return to Base

RWR—Radar Warning Receiver

RWY—Runway

RX—Rockets

S—South

SATCO—Sport Air Traffic Controllers Organization

SE—Southeast

SFC—Surface

SFO—Simulated Flameout

SID—Standard Instrument Departure

SM—Statute Mile

SOC—Statement of Capability

SOF—Supervisor of Flying

SPORT—Callsign AFFTC Radar Control Facility

SR—Slow Speed Low Altitude Training Routes

SRB—Safety Review Board

STA—Shuttle Training Aircraft

SW—Southwest

SUA—Special Use Airspace

SUP—Supplement

TAS—True Airspeed

TC—Test Conductor

TD—Test Director

TDY—Temporary Duty

TFC—Task Force Commander

TFR—Terrain Following Route

TFSI—TRACOR Flight Systems, Inc

TM—Telemetry

TO—Technical Order

TOF—Takeoff Factor

TO/L—Takeoff and Landing

TOLD—Takeoff and Landing Data

TPS—United States Air Force Test Pilot School

TRACON—Terminal Radar Approach Control

TRNS—Transportation

TW—Test Wing

UAV—Unmanned Aerial Vehicle

US—United States

USMC—United States Marine Corps

USN—United States Navy

USAF—United States Air Force

UTTR—Utah Test and Training Range

VCV—Victorville VOR/DME

VIP—Very Important Person

VFR—Visual Flight Rules

VMC—Visual Meteorological Conditions

Vol—Volume

VR—VFR Military Training Route

W—West

WGS84—World Geodetic Survey

Z—Zulu

Attachment 2

REMOTELY OPERATED AIRCRAFT TESTS (ROA), R-2515

A2.1. Definitions.

A2.1.1. For the purposes of this attachment:

A2.1.1.1. ROA. An unmanned flight vehicle capable of autonomous, semi-autonomous, or remotely piloted operation that is normally designed to be recoverable. Same-mission chase aircraft are considered a component of the ROA and are cleared concurrently with the ROA.

A2.1.1.2. Sterilized Airspace. Airspace which is kept clear of traffic by SPORT. Examples may include, but are not limited to, PIRA, R-2515, sub-sections of R-2515 (e.g. High Altitude Supersonic Corridor, the portion of R-2515 east of Highway 395, etc.), or specified altitude blocks within the above lateral boundaries. Sterilized airspace boundaries shall follow currently designated airspace boundaries whenever feasible. Other examples of sterilized airspace shall be formulated as part of the safety review process.

A2.1.1.3. Edwards Class D Airspace. Airspace within a seven (7) NM radius of the geographical center of Edwards AFB main base runway from the surface up to 2,500' AGL (4,800' MSL) except that portion of the Class D which overlaps ROA Work Area the Alpha Corridor or West Range when either is active.

A2.1.1.4. ROA Work Area and ROA Corridor. Airspace bounded by Lakeshore Drive to the west, Lakebed Rwy 5/23 to the south, the "islands" east of East Lakeshore to the east, and the railroad tracks to the north from the surface up to and including 10,000' MSL. When active and SPORT is open, the ROA Work Area is excluded from Class D Airspace. These areas are depicted in Figure A1-1.

A2.1.1.5. Four Corners ROA Work Area. Located east of Kramer Junction. See paragraph 4.11 for a description of the area.

A2.2. Scope.

A2.2.1. The policies within this attachment apply only to ROA operations within R-2515.

A2.3. Authorization.

A2.3.1. ROA operators shall coordinate and receive approval for their operations from AFFTC. Initial contact shall be made through 412 TW/RMX or Dryden Aerospace Projects.

A2.4. General Requirements.

A2.4.1. Pre-Mission Coordination Requirements. ROA Project Managers shall:

A2.4.1.1. Coordinate air traffic control, airfield management, and airspace requirements, to include flight profiles, with 412 OSS/OSA at least 30 days prior to the first scheduled operation (this includes taxi tests or first flights).

A2.4.1.2. Provide 412 OSS/OSA with ROA flight and ground characteristics at least 14 days prior to the first scheduled operation to permit local training of air traffic controllers. 412 OSS/ OSA shall be responsible for accomplishing all coordination within the 412 OSS.

A2.4.1.3. Ensure the appropriate FCIFs, or other advisory information, are coordinated in advance with all affected agencies and published at least two (2) days prior to the scheduled operation.

A2.4.1.4. Complete the ROA Mission Worksheet (Worksheet A1-2) and forward to 412 OSS/OSA at least 24 hours prior to each ROA mission. 412 OSS/OSA shall forward a copy of the completed ROA Mission Worksheet to Tower and SPORT. In the event either facility has a question concerning the ROA mission, they shall coordinate directly with the ROA Project Officer listed on the worksheet.

A2.4.2. Scheduling Requirements.

A2.4.2.1. ROA programs shall schedule their operations IAW established AFFTC scheduling procedures. To the maximum extent possible, Main Base and South Base operations should be limited to weekdays before 0800L or to weekends to minimize the impact on other Edwards AFB manned flight activities. Mission slips or flight profiles requiring ROA operations after 0800L on weekdays (operations requiring closure of the Class D Airspace) require 412 OG/CC approval prior to conducting the mission. Mission slips are afforded no priority over other test missions.

A2.4.3. General Airspace Requirements.

A2.4.3.1. The geographical flight restrictions published elsewhere in this instruction apply to ROA operations. In addition, when at or below FL 400 without a safety chase aircraft, the ROA shall be operated in sterilized airspace. ROA operations above FL 400 do not require a chase aircraft or sterilized airspace.

A2.4.4. Chase Requirements.

A2.4.4.1. If the ROA operating airspace has not been sterilized and the ROA is operating at or below FL 400, the ROA shall be accompanied by a chase aircraft. A chase aircraft may be required for other reasons identified during the safety review process. If a chase aircraft is required, it shall have communications with the ROA ground control facility and the RSO.

A2.5. Flight Termination System (Fts) Requirements.

A2.5.1. ROAs with a hazard footprint that can always be contained within R-2515 airspace land boundaries without endangering range assets, populated areas, or sensitive areas may not require a FTS. This determination shall be made as part of the AFFTC/SE or Dryden Flight Research Center (DFRC) safety review process. If so required, the ROA shall be equipped with an AFFTC or DFRC approved FTS. If a chase aircraft is required (see A2.4.4.), the chase aircraft shall have the ability to terminate the ROA or shall have direct communications with the ground control facility having flight termination responsibility. An FTS meeting the requirements of Range Commander's Council Standards 319-92 and 313-94 is desired however, deviations from these standards shall be considered on a case by case basis. Detailed requirements for FTS certification, testing, and approval are contained in AFFTCR 127-1, Range Safety Requirements. The AFFTC does not have the capability for FTS testing but retains the authority to monitor such tests. The program manager shall make arrangements for the required tests. Test organization and procedures shall be approved by AFFTC/SE and 412 TW/TS.

A2.5.2. FTS Approval. FTS approval shall normally be accomplished as part of the overall program safety approval process. The safety approval process shall be IAW AFFTCR 127-3. FTSs are

normally approved for the duration of the program. Approval of the FTS configuration may be granted after acceptance of the FTS report and successful demonstration of the complete system. Systems approved for use on one program are not automatically authorized for use on another program. Any changes or modifications to an approved system or test procedure shall be approved through AFFTC/SE.

A2.6. Position And Altitude Reporting Requirements.

A2.6.1. ROAs with a hazard footprint that can always be contained within R-2515 airspace land boundaries without endangering range assets, populated areas, or sensitive areas may not require a transponder. This determination shall be made as part of the AFFTC/SE or DFRC safety review process. If so required, the ROA shall be equipped with a Mode 3A and C transponder suitable for use in R-2515. In addition, the ROA ground control facility shall determine the position and altitude of the ROA. This information may be provided by a variety of means. ROAs accompanied by chase aircraft are exempt from the transponder requirement if the chase aircraft is equipped with a transponder suitable for use in R-2515. If the controlling ATC agency loses position and/or altitude track on the ROA, the ROA shall abort the mission and return to base.

A2.7. ROA Airfield Operations.

A2.7.1. ROA operations shall be conducted from the Edwards North Base or north Lakebed areas to the maximum extent possible. If valid mission requirements preclude operations from the North Base or north Lakebed areas, ROA operations may be conducted from Main Base or South Base with 412 OG/CC approval. Project Managers shall debrief 412 OSS/OSA after each mission on any problems associated with air traffic control, airfield management, or airspace requirements.

A2.8. ROA Work Area Operations.

A2.8.1. When the ROA Work Area is active, Tower shall transfer control of the ROA Work Area to SPORT. The ROA mission controller assumes all responsibility for flight activity within this airspace. The ROA mission controller shall maintain 2-way radio communications with SPORT at all times while ROA operations are being conducted within the ROA Work Area. SPORT shall notify Tower of any ROA boundary violations. When active, the ROA Work Area is no longer considered part of the Class D Airspace and North Base operations, Lakebed operations, and IFR instrument approaches are not authorized. North Re-entries and Highway 58 arrivals and departures may be authorized on a case-by-case basis at the discretion of the Tower Watch Supervisor. The ROA Project Manager shall coordinate with North Base to de-conflict operations from North Base flight operations. If an aircraft requires entry to or exit from North Base while the ROA Work Area is active, Tower shall coordinate with SPORT to direct the ROA to climb above 5,000’ MSL. After the ROA is above 5,000’ MSL, the aircraft may be cleared to land or takeoff. When the ROA Work Area is active, all other aircraft in Class D Airspace shall remain on or south of the Tower Fly-by Line.

A2.8.2. ROA Corridor Operations. The ROA Corridor shall only be used to allow ROA transit (above Class D Airspace) between the ROA Work Area and the PIRA when Class D Airspace is open. Flight in the ROA Corridor shall be minimized. ROAs shall be at or above 5,000’ MSL before entering the ROA Corridor.

A2.8.3. North Base and North Lakebed Area ROA Operations. ROA operations conducted from North Base or north Lakebed areas which utilize the ROA Work Area shall not require closure of the

Class D Airspace. In this case, ROAs shall remain within the lateral and vertical confines of the ROA Work Area.

A2.8.4. Main Base and South Base ROA Operations. The ROA mission controller shall request takeoff and landing clearance from Tower on ATC frequencies. Tower shall not clear ROAs for takeoffs or landings on mission frequencies. ROA departures should use Main Base Rwy 4 or South Base Rwy 6 to the maximum extent possible. For departures, the Class D Airspace shall be closed and all aircraft shall exit Class D Airspace before takeoff clearance is issued to the ROA. The Class D Airspace will be opened when the ROA has exited the airspace or is established in the ROA work area. ROA arrivals should use Main Base Rwy 22 or South Base Rwy 24 to the maximum extent possible. The ROA mission controller shall notify Tower at least 15 minutes prior to the planned ROA arrival. Tower shall direct all aircraft to exit out of, and close the Class D Airspace prior to allowing the ROA to enter Class D Airspace. After receiving Tower approval to enter Class D Airspace, the ROA shall fly to and begin final approach. The Class D Airspace shall remain closed until the ROA has landed. After the ROA has landed, the Class D Airspace will be re-opened to aircraft, although the runway may remain closed until the ROA is removed from the runway and an airfield inspection, if required, is completed.

A2.9. Mission Monitoring.

A2.9.1. SPORT shall provide real-time mission monitoring at the Ridley Mission Control Center if required by specific program safety planning. ATC assumes no responsibility for separation of ROAs from manned aircraft. Traffic advisories shall be issued on a workload-permitting basis. Separation responsibility lies with the ROA operator (and the chase aircraft commander, if a chase aircraft is being used). If SPORT is closed and JOSHUA has control of R-2515, R-2515 Airspace and Class D Airspace shall be sterilized for ROA operations.

A2.10. Flight Termination Procedures.

A2.10.1. RSO Responsibility. Shall act as an advisor to the RCO during the mission and has independent authority for the termination of ROA missions.

A2.10.2. Conditions for Flight Termination or Recovery. The responsible agency RSO (AFFTC or DFRC) has final termination authority if one or more of the following conditions exist:

A2.10.2.1. Protected area violation: Valid data indicates the vehicle profile will violate the boundaries of the predefined work area and the vehicle is not under positive control and a reasonable doubt exists the vehicle will return to the pre-determined flight path. The altitude of the vehicle and the location of adjacent traffic should be taken into consideration before initiating the FTS.

A2.10.2.2. Position unknown: If the present position of the vehicle is unknown for any reason and the possibility exists that continuous flight will violate range safety criteria.

A2.10.2.3. Unsatisfactory performance: Vehicle performance degrades to the degree that continuation of flight creates a safety hazard.

A2.11. Acceptable Risk.

A2.11.1. IAW with Chapter 98 - Public Law 60, 11 May 1949 (Guided Missiles - Joint Long Range Proving Grounds) ROA operations conducted in R-2515 shall show a level of risk to human life and/

or property damage no greater than that for operations of a piloted aircraft of comparable class. Ground tracks shall be planned such that overflight of populated areas is minimized. Non-essential personnel shall be kept clear of the flight path during high risk events.

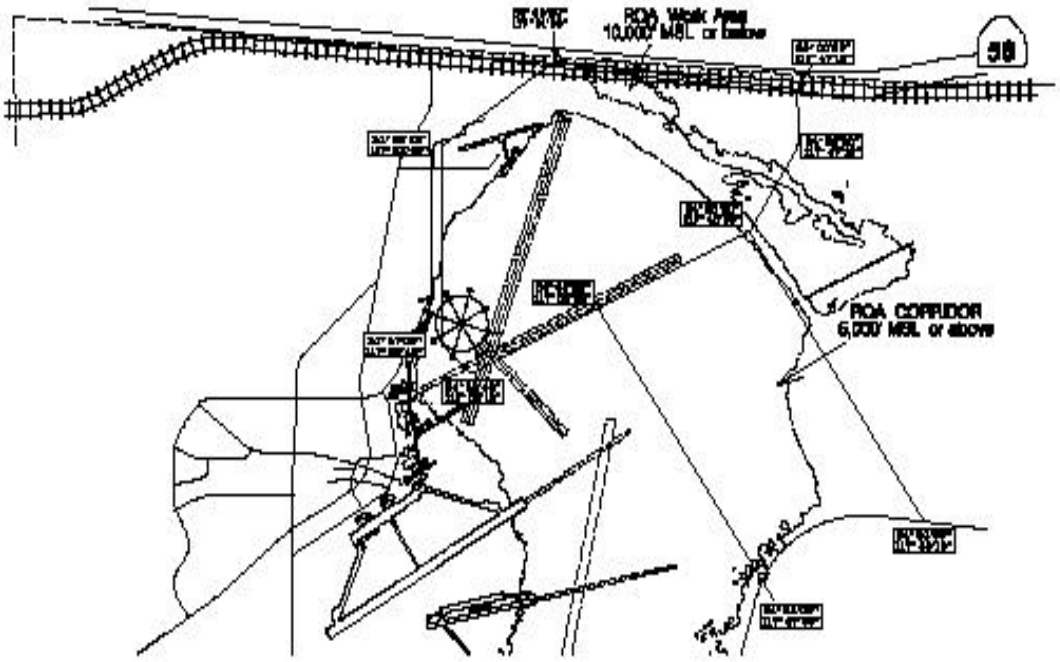
A2.12. Commercial Operations.

A2.12.1. In addition to the above requirements, Commercial (Non DOD or DOD contractor) ROA operators shall enter into a Letter of Agreement with the R-2508 Complex Control Board containing a clause to indemnify the U.S. Government from any damage to persons or property resulting from such operations.

A2.13. Violations.

A2.13.1. ROA operations shall remain clear of the Class D Airspace unless specific prior approval has been obtained from the Tower IAW FAAO 7110.65. Due to the close proximity of ROA work areas to the Class D Airspace, ROA mission planners and operators shall exercise extreme caution not to violate the Class D Airspace. Airspace violations could result in a conflict with manned aircraft established in the VFR traffic pattern or on final approach. A Hazardous Air Traffic Report could then be filed against the ROA operator. All range violation complaints shall be logged on a Range Complaint Report form and shall be summarized in a letter to the commander of the organization involved. The commander shall ensure an investigation is conducted, endorse the letter as to findings and action taken, and return it to AFFTC/SE by the suspense date assigned.

Figure A2.1. ROA Work Area and Corridor.



WORKSHEET A1-2 ROA MISSION WORKSHEET

Note: ROA Project Officer shall complete and forward to 412 OSS/OSA NLT 24 hours prior to each ROA mission (taxi tests, airborne tests, first flights, etc.). Phone number is 277-3808, FAX number is 277-5544. Additionally, forward this worksheet to the following FAX numbers: Airspace Manager (7-4462), Tower (7-2013), and SPORT (7-8863).

ROA Callsign _____

ROA Type _____

Mission Date and Proposed Departure/Arrival Time

_____

Proposed Departure/Arrival Runway

_____

Route of Flight/Flight Profile

_____

_____

_____

Mission Frequency (for monitor purposes only--ROAs shall be cleared for takeoff/landing on ATC frequencies)

_____

Ground Vehicles/Ground Support (Callsign, Runway Access Time Required, Other Specifics)

_____

_____

_____

Coordination Completed with North Base _____ Yes _____ NA

Project Officer and Phone Number _____

Attachment 3

A3.1. Survey Coordinates. (All coordinates are in NAD 27).

ID	DESCRIPTION	LAT	LONG	ELEV	REMARKS
1	PMD TACAN	34×37.91'N	118×03.77'W	2495	Palmdale
2	GMN TACAN	34×48.30'N	118×51.60'W	4500	Gorman
3	E. end Tank Farm	35×13.60'N	119×28.70'W	420	EHF 020/21
4	Pump Station	34×56.70'N	118×49.50'W	1280	GMN 356/9
5	Rd Bridge ov Aquaduct	34×47.30'N	118×34.80'W	2980	GMN 078/14
6	Cntr Lg Bldg Cement Plnt	35×07.34'N	118×22.24'W	3955	EDW 270/38
7	Cntr of W Dam	35×38.78'N	118×28.82'W	2605	PTV 105/31 Green 3
8	Onyx Peak	35×39.50'N	118×13.50'W	5300	NID 250/26
9	Owens Peak	35×44.30'N	117×59.78'W	8452	NID 265/15
10	Red Hill Peak	35×59.23'N	117×55.06'W	3954	NID 312/21
11	Power house	36×06.62'N	117×57.34'W	3580	NID 327/28
12	Sawmill	35×50.97'N	117×52.36'W	2576	NID 301/13
13	FIM TACAN	34×21.40'N	118×52.80'W	2200	Fillmore
14	Rd Bridge ov Creek	34×41.50'N	119×21.50'W	3580	Out of R-2508
15	Rd Int X	35×18.73'N	117×59.16'W	2126	EDW 313/23
16	Substation	35×24.10'N	117×40.84'W	2822	NID 163/18
17	Water tank	35×26.60'N	117×38.10'W	2820	NID 154/15
18	E.Searles Mine	35×41.80'N	117×12.80'W	2500	NID 073/23
19	Missile Trailer	35×30.13'N	117×05.47'W	2680	NID 095/31
20	Bldg Cuddyback Afld	35×16.74'N	117×23.89'W	2845	NID 134/28 Amber 14
21	Block house	35×07.52'N	117×36.34'W	3002	EDW 021/10 Red 8 Green 1
22	Peak-Castle Butte	35×06.87'N	117×52.62'W	3124	EDW 302/11
23	Laurel Mtn Radar	35×28.76'N	117×40.94'W	4470	NID 162/21 Amber 2
24	Tank Farm	35×34.30'N	117×25.80'W	2020	NID 103/15
25	RR "Y" Searles	35×29.25'N	117×38.29'W	3225	NID 152/12 Blue 2
26	Ballarat Radar	36×02.04'N	117×16.14'W	1210	NID 029/20 Blue 4 Amber 12
27	Peak-Danny's Mound	36×51.55'N	117×52.69'W	2315	BTY 258/55 Amber 10
28	Manzanar Aprt Rwy cntr	36×44.20'N	118×08.62'W	3821	BTY 258/68 Amber 9
29	Dam N. end Haiwee Resv	36×13.76'N	117×57.82'W	3771	NID 322/35

ID	DESCRIPTION	LAT	LONG	ELEV	REMARKS
30	Bldgs-Robbers Roost	35×32.85'N	117×55.85'W	3210	NID 228/15
31	Rd/RR overpass	35×06.62'N	118×19.56'W	3930	EDW 270/30 Amber 5
32	Red Hill	34×52.19'N	118×07.04'W	2726	EDW 235/20
33	Rd/RR overpass	35×00.37'N	117×52.82'W	2335	EDW 267/8
34	Jackrabbit Hill	34×50.33'N	117×42.17'W	2877	EDW 196/9
35	Water tower Sled Trk	34×49.14'N	117×53.48'W	2295	EDW 204/14 Blue 12 Amber 4
36	Bridge	34×57.09'N	118×09.53'W	2660	EDW 250/21
37	Independence Airport	36×49.22'N	118×12.01'W	3935	BTY 255/70
38	Pk N. Lk Hill Panamint	36×24.12'N	117×24.50'W	1695	BTY 217/40 Red 6 Amber 11 Green 10
39	Radar Site/Trlr Cmpx	35×31.40'N	117×18.23'W	2450	NID 102/21
40	Cal City Tank	35×09.92'N	117×51.29'W	2573	EDW 316/13 Blue 1
41	Haystack Butte	34×51.88'N	117×36.95'W	3412	EDW 127/9
42	Hq Bldg Echo Range	35×31.17'N	117×17.70'W	2405	NID 102/22
43	Rd/RR X	35×23.55'N	117×47.78'W	2090	NID 180/19
44	Wilson Ranch	36×28.99'N	117×36.56'W	5310	BTY 230.46 Black 1 or 4
45	Panamint Rd Intx	36×20.38'N	117×25.34'W	1576	BTY 214/43 Prple 6
46	Convoy Hill R-2524	35×38.50'N	117×04.45'W	2198	NID 079/30
47	Cuddy Tank	35×19.96'N	117×31.53'W	2686	NID 143/23
48	RR Munitions Ldg	35×02.08'N	117×40.00'W	2460	EDW 031/4
49	Three Sisters	35×14.10'N	117×03.40'W	3001	DAG 289/29
50	Solar Station	35×00.27'N	117×33.97'W	2450	EDW 066/9
51	Mojave Airport	35×03.30'N	118×09.80'W	2787	EDW 267/22
52	Lookout tower	35×50.68'N	118×29.93'W	6000	PTV 083/26
53	Rest Area N of Hwy	35×00.48'N	117×43.10'W	2363	EDW 009/2
54	NW end Lost Lake	35×46.05'N	116×49.98'W	2330	NID 067/42 Amber 13A
55	Little Hill Rd Intx	35×40.89'N	117×23.43'W	1680	NID 075/15
56	Microwave Tower	35×01.29'N	118×01.30'W	2400	EDW 264/15 Brn 1 Green 2
57	Water tank	35×20.63'N	117×25.62'W	2707	NID 132/24
58	Lucerne Val Rd Intx	34×26.70'N	116×57.10'W	3100	VCV 097/23
59	Newberry Intch	34×49.80'N	116×41.62'W	1903	DAG 199/10
60	Mt Afton Intch	35×04.25'N	116×24.69'W	1772	DAG 086/11
61	Peak	35×11.59'N	116×17.95'W	3617	DAG 030/19

ID	DESCRIPTION	LAT	LONG	ELEV	REMARKS
62	EDW TACAN	34×58.94'N	117×43.91'W	2338	
63	Garden City Sta				
64	Cntr Large Bldg	35×44.61'N	117×19.50'W	1618	NID 063/18 Blue 3
65	Pk of Lk Hill Panamint	36×23.07'N	117×24.22'W	2030	BTY 216/40 Blue 5
66	Lg Bldg Wht Swan Mine	36×20.99'N	117×43.45'W	4810	NID 342/40
67	Lg Tnk Bartlett Mine	36×28.59'N	118×00.86'W	3650	NID 325/50 Blue 6
68	Pk Templeton Mtn	36×18.83'N	118×12.39'W	9830	NID 310/45 Blue 7
69	Needles Lookout Twr	36×06.58'N	118×29.06'W	8245	PTV 050/28 Blue 8 Amber 7
70	Twr (218')	35×42.34'N	118×33.52'W	6980	PTV 133/26 Blue 9 Amber 6
71	Rosamond Lk/Blvd X	34×51.91'N	118×06.76'W	2277	EDW 234/20
72	Cntr Lg Bldg B-1 CTF	34×55.38'N	117×53.47'W	2298	EDW 230/9
73	Pk of Desert Butte	35×05.13'N	117×56.29'W	2849	EDW 286/12 Amber 1
74	Peak	34×59.04'N	117×14.09'W	2563	EDW 075/25 Amber 3
75	Cntr of bldg Manzanar	36×43.66'N	118×08.85'W	3860	BTY 251/68
76	Cntr bldg E end Afld	35×34.63'N	117×01.87'W	2115	NID 085/33 Amber 13
77	RR bridge	35×02.70'N	116×07.70'W	1100	DAG 055/15
78	Rd Intx	35×23.20'N	116×07.70'W	1000	DAG 025/34 @B-1 4
79	Tecopa	35×50.90'N	116×13.70'W	1400	DAG 002/56 @B-1 5
80	Rd bend	36×26.80'N	116×16.50'W	2550	BTY 127/31 @B-1 7
81	Rd Intx	35×51.72'N	117×44.09'W	2686	NID 332/11
82	Dam on resevoir	36×08.21'N	117×56.98'W	3780	NID 319/30
83	Rd Intx (Olancha)	36×16.90'N	118×00.20'W	3700	NID 321/39
84	BTY TACAN	36×48.00'N	116×44.80'W	2925	Beatty
85	Peak	36×54.00'N	118×07.70'W	5884	BTY 260/67
86	Peak	36×36.70'N	117×59.50'W	4534	BTY 244/61
87	Buckhorn	34×50.30'N	117×59.65'W	2400	EDW 221/15
88	Dry Lake	34×52.18'N	117×33.43'W	2820	EDW 115/10 Red 1
89	Hill	34×57.25'N	117×07.70'W	2925	EDW 077/30 Red 2
90	Gravel Pit	35×44.80'N	118×07.40'W	3175	NID 266/22 Red 4
91	Owens Rd Intx	36×25.80'N	117×49.42'W	3796	NID 337/45 Red 5
92	PB 10	34×51.38'N	117×45.37'W	2482	EDW 176/08 PIRA
93	Gravel Pit	35×07.49'N	118×11.09'W	3290	EDW 275/24
94	Base Red Hill	35×59.02'N	117×55.06'W	3500	NID 312/21
95	Sand dune W tip dry lk	37×05.08'N	117×40.20'W	3400	BTY 278/49

ID	DESCRIPTION	LAT	LONG	ELEV	REMARKS
96	SW tip Saline (Salt) Lk	36×41.77'N	117×49.48'W	1060	BTY 247/52Purple 7
97	Base Lt Robbers Roost	35×35.60'N	117×46.83'W	3750	NID 205/07
98	Cement plant	35×02.20'N	118×18.70 'W	3550	EDW 262/29 Blue 11
99	Base E. Harpers Butte	35×03.71'N	117×23.33 'W	2165	EDW 058/17
100	Jawbone Mine	35×18.10'N	118×07.00'W	2875	EDW 296/29
101	RR station	34×58.25'N	118×01.20'W	2440	EDW 255/13
102	Echo Rd Intx	35×33.07'N	117×06.42'W	2110	NID 090/29
103	Cabin	37×00.90'N	117×54.60'W	5780	BTY 267/57 Black 2 or 3
104	NW end Tinemaha Dam	37×03.38'N	118×13.58'W	3880	BTY 267/73 Black 2 or 3
105	W slope Inyo Mtn Range	36×37.00'N	117×59.30'W	4200	BTY 245/62 Black 1 or 4
106	SE Rd/RR Intx of 2	35×52.96'N	117×53.34'W	2772	NID 304/15
107	Castle Rock Peak	36×10.65'N	118×27.50'W	7740	PTV 046/31
108	Pk Desert Butte	35×04.36'N	117×55.61'W	2140	EDW 284/11
109	Saltdale	35×21.60'N	117×53.20'W	1920	NID 192/22 Amber 3
110	Saddleback Robbers Mtn	35×27.10'N	117×11.50'W	3500	NID 105/28
111	Windgate Butte	35×45.25'N	116×58.15'W	2010	NID 068/35
112	Afld Lk Butte	35×53.72'N	117×40.00'W	2725	NID 348/13
113	S side Lake Hill	36×22.50'N	117×23.90'W	1542	BTY 216/41
114	E. Chocolate Butte	35×56.00'N	117×13.47'W	1085	NID 042/27
115	Cannon Butte	35×32.40'N	117×18.10'W	2516	NID 100/21
116	Microwave Twr on Peak	34×50.90'N	118×46.90'W	5430	GMN 047/05
117	Hairpin curve	35×00.20'N	119×24.60'W	2300	EHF 090/23
118	NW end Lake	35×14.10'N	119×18.30'W	288	EHF 058/29
119	E end of Lake	34×46.30'N	118×44.20'W	3350	GMN 092/06
120	Rd bridge ov canal	35×16.10'N	119×18.50'W	375	EHF 055/29
121	Rd intx	35×11.80'N	119×42.80'W	2500	EHF 035/10
122	Pond	34×47.90'N	118×34.60'W	2882	GMN 077/14
123	TO Rwy 22	34×54.95'N	117×51.70'W	2281	EDW 223/08
124	TO Rwy 4	34×53.70'N	117×54.20'W	2302	EDW 223/10
126	PB-1	34×53.16'N	117×45.33'W	2414	EDW 180/06 PIRA
127	Shutdown (F-16)	34×55.80'N	117×53.20'W	2296	EDW 232/08
128	Cntr Harper lake	35×01.50'N	117×16.50 'W	3000	EDW 068/22
129	Boron Mines	35×02.60'N	117×40.00'W	2500	EDW 024/05
130	Cross Mtn Saddle	35×16.50'N	118×07.35'W	4250	EDW 297/26

ID	DESCRIPTION	LAT	LONG	ELEV	REMARKS
131	Rands Rd Intx	35×36.62'N	117×31.50'W	2490	NID 104/09
132	W end Owl Lake	35×43.57'N	116×42.34 'W	1696	NID 072/48
133	E Panamint Hill (rocks)	35×56.00'N	117×13.47'W	1085	NID 041/27
134	W end Dry Lake (R-2505)	35×54.83'N	117×46.45'W	2290	NID 327/15
135	Willow Creek Camp	36×50.28'N	117×55.10'W	2290	BTY 257/57
136	Bend in aqueduct	36×55.60'N	118×13.65'W	3815	BTY 261/71
137	Cowhorn Lake	37×10.00'N	117×59.25'W	6560	BTY 275/64
138	Rd Intx	36×21.58'N	117×37.50'W	4855	NID 349/41
139	Rd Intx	36×02.04'N	117×16.82'W	1303	NID 029/29 @Blue 4
140	Cntr Kelso Rwy	35×22.80'N	118×13.50'W	4040	EDW 300/34
141	Caliente Hill Peak	35×19.90'N	118×23.00'W	3835	EDW 287/39
142	Superior Valley Rwy	35×17.13'N	117×05.90'W	3065	DAG 290/31
143	Freeman	35×36.08'N	117×54.14'W	3200	NID 230/12
144	Salt Plant	36×27.03'N	117×53.80'W	3560	NID 333/47
145	Power station	36×56.34'N	118×16.88'W	4462	BTY 260/74
146	N tip ridge	37×12.19'N	117×50.10'W	3120	BTY 280/57
147	Aqueduct	36×13.65'N	117×58.01'W	3771	NID 322/35
148	Peak Monache Mtn	36×12.32'N	118×11.71'W	9410	NID 306/40
149	Lookout Tower	35×51.30'N	118×30.30'W	7400	PTV 084/25
150	PB-9	34×51.00'N	117×44.70'W	2536	EDW 171/08 PIRA
151	IR Board	34×53.07'N	117×40.99'W	2824	EDW 144/06 PIRA
152	South Gate	34×48.60'N	117×55.00'W	2300	EDW 207/14
153	Cement Plant	35×00.04'N	118×09.32'W	3560	EDW 257/21
154	Small Knoll	35×18.20'N	118×25.70'W	3250	EDW 284/40
155	Saddleback Mtn	35×44.70'N	118×31.90'W	6200	PTV 099/25
156	Peak (Domeland Wild)	35×43.70'N	118×12.60'W	6250	NID 260/26
157	Sewage Pond (EAFB)	34×51.20'N	117×52.60'W	2302	EDW 199/11
158	Boron Radar	35×04.87'N	117×34.94'W	3070	EDW 036/09
159	PB-8	34×51.34'N	117×43.10 'W	2618	EDW 163/08 PIRA
160	N Base Hangar	34×59.01'N	117×51.88'W	2285	EDW 255/07
161	Searles Tunnel	35×27.80'N	117×37.60'W	3214	NID 158/13
162	Hwy bridge	34×54.48'N	118×09.80'W	2606	EDW 243/22
163	S tip sewer lake	34×52.00'N	117×52.60 'W	2770	EDW 199/11
164	PB-2	34×53.33'N	117×43.42'W	2519	EDW 165/05 PIRA
165	P-2	34×49.78'N	117×47.59'W	2410	EDW 185/10
166	B-52s	34×49.13'N	117×51.31'W	2280	EDW 199/12
167	Storage tanks	34×59.73'N	118×09.74'W	2670	EDW 257/22

ID	DESCRIPTION	LAT	LONG	ELEV	REMARKS
168	Kramer Junction	34×59.53'N	117×32.41'W	2473	EDW 070/09
169	DAGRAG twr	34×52.17'N	117×46.41'W	2452	EDW 185/07 PIRA
170	Wing HQ	34×55.42'N	117×53.92'W	2330	EDW 234/09
171	Boat SE Harpers Lake	35×00.01'N	117×10.90'W	2111	EDW
172	Rwy Intx (Lk Bed)	34×50.50'N	117×51.30'W	2270	EDW 200/10
173	Ridley	34×55.35'N	117×53.44'W	2332	EDW 230/09
174	PB-3	34×53.50'N	117×41.30'W	2758	PIRA
175	PB-5	34×50.25'N	117×36.20'W	3051	PIRA
176	PB-10	34×51.30'N	117×45.30'W	2485	PIRA
177	PB-11	34×52.90'N	117×35.90'W	2880	PIRA
178	PB-12	34×52.90'N	117×34.30'W	2827	PIRA

Note: Master survey file for points in and around Edwards AFB is maintained by 412 Range Sq/ENRER (73175/72633).

Attachment 4

AIRCRAFT FLIGHT DATA RECORD

A4.1. Mission Symbols.

A4.1.1. Use the authorized mission symbols below to fill out AFTO FM 781. Since there are many other Job Order Numbers (JONs) used than identified below, use the definition column to associate a specific JON with the correct mission symbol.

MISSION SYMBOL	AFFTC JON	TITLE	DEFINITIONS
T-1A	M94C1400	Student Training (TPS)	Missions to instruct and train USAFTPS students in a formal course of instruction. USAFTPS candidate flight evaluation is also included in this category. (Includes USAF students identified to attend other test pilot schools.)
T-1B	M94C1400	Student Training (other)	Missions flown under USAFTPS direction to instruct and train individuals engaged in or candidates for a formal course of instruction with another recognized test pilot school.
T-3A	M94C1400	TPS Upgrade	Missions flown by TPS instructors to obtain aircraft or mission qualification /re-qualification per 51-1 and 11 series regulations.
T-3B	M94C1400	Continuation Training (TPS)	Missions to maintain basic aircraft currency as required by AFI 11-401 including annual evaluation flights, night requirements, instrument proficiency, FTTs, and staff qual flights.
O-3	996DOO00	Aircraft Delivery	Delivery of aircraft when flight hours cannot be charged to a specific JON (i.e., PDM, TCTO, contractor facilities, ferry flights, etc.)
O-4	Test JON	Direct Test	Missions for aerospace vehicles engineering testing (including airframe, propulsion units, and components that are test vehicle integral parts.

O-5D	SC500000	Paradrop	Test support missions flown for paradrops.
O-5E	Test JON	Specific Test Support	All specific test profiles not covered under other O-5 categories.
O-5F	Test JON	Specific Test Support Profile	Practice over and above normal 51 and 11 series mission training to gain proficiency in events directly identifiable with and necessary for a particular test program. Use test JON when chargeable to a specific test program or 998T30 when unable to charge the test program.
O-5G	Test JON or SC6010000	Pacer	Test support missions flown as pacer aircraft.
O-5P	Test JON	Photo Chase	Test support missions flown to obtain photographic documentation.
O-5R	Test JON		Aerial Refueling Test support missions flown by tanker aircraft providing refueling.
O-5S	Test JON	Safety Chase	Test support missions flown to provide safety chase.
O-5T	Test JON	Target	Test support missions flown as target/tow target.
O-5W	Test JON	Icing	Test support missions flown for icing/water spray tests.
O-5X	Test JON	Other	Test support missions not covered under any other O-5 category.
O-6E	Tng JON	Qual Training or Project JON	Missions flown for Phase I initial qualification/re-qualification (includes initial/requal evaluation flights).
	Tng	Qual Eval Training	Test Pilot/Test Navigation qual eval flights.
O-6F	Tng or Project JON	Continuation Training	Mission flown for basic aircraft proficiency continuation training or currency for 51 and 11-series regs, or periodic qualification flights required by AFI 11-401 and command supplements. Use Test JON when chargeable to a specific program.

O-6G	Tng or Project JON	Mission Qual Training	Missions flown for mission qualification/ re-qualification and mission currency per 51 and 11-series regs. Includes mission evals. (e.g. FTTs, chase, air-to-air training, air-to-ground training, etc.). Use Test JON when chargeable to a specific test program.
O-7	Overhead JONs Special Missions (998S0100 Search & Rescue Flt Spt) (998S0200 Flt Support in Sys Demo) (998S0300 Flt Spt of Lakebed Checks) (998S0400 Flt Support Parts Pickup) (998S0500 Flt Support Passenger) (998S0600 ROTC/Cadet Flights) (998S0700 Incentive/ Orientation Flts) (998S0800 VIP Flights) (998S0900 Flt Spt Meeting/ Displays) (998S1000 Flt Spt Other Overhead)	Special	Missions in E-coded aircraft not in the categories above. Included are search and rescue, demonstrations, record attempts, lakebed checks, parts and equipment pickups/ dropoffs, passenger pickups/ dropoffs, ROTC / Cadet/ Incentive/ Orientation flights, directed meetings, static displays and other indirect or overhead support flying requirements.
O-8E	996F0000	Maintenance Test	Missions to perform functional check flights after completing inspections or maintenance to ensure the aircraft is airworthy and capable of mission accomplishment except described in O-8F. These flights are flown by FCF qualified aircrews.
O-8F	996F0000	Equipment Check	Missions for troubleshooting flights or operational checks not requiring FCF crew.

All proficiency training in an aircraft model undergoing test or models considered identical for currency purposes (such as F- 15/A/B/C/D/E), whether EI or EH coded, by a pilot assigned to a test squadron or attached for flying (except Wing and Center Commander/Directors flying for supervisory purposes) is considered program pilot readiness flying. Charge this flying to a project JON.

A4.2. Job Order Number Use.

A4.2.1. Use the following procedures for AFTO FM 781/AFMC FM 83/JOCAS purposes.

A4.2.1.1. For all reimbursable test/test support missions (mission symbols 04, 05) and for USAFTPS missions (mission symbols T-1, T-3), use the scheduled Ops Number prefixed with an "X" and suffixed with 00 as the JON.

A4.2.1.2. For all other missions use the clear text reimbursable or non- reimbursable JON. (Specifically for the AFMC FM 83, change only the Ops Number.)

A4.2.1.3. For test/test support missions funded under one program which change to a test/test support mission funded under another (non- reimbursable) program, establish a new Ops Number prior to launch.

Exception: The test mission's original reimbursable program changes to another reimbursable program. Bill all costs already incurred by the original mission to the newly designated program. (See para A4.3. for operations specialist procedures.)

A4.2.1.4. For test/test support missions changing to non-test/test support missions after the aircrew steps to the aircraft, use the Ops Number to get airborne and complete authorized activities. Use the clear text JON upon landing as described in para A4.2.1.2.

A4.2.1.5. For test/test support missions where, after airborne, a portion of the mission reverts to other activity funded by a different JON, the AFTO FM 781 must reflect this split funding using the INFLIGHT option in blocks 9 and 10. Paras A4.2.1.1. and A4.2.1.2. govern the entered JON.

A4.2.1.6. For a non-test/test support mission which changes to a test/test support mission, use the Ops Number to launch, accomplish authorized activities (412 OG/CC add-on approval) and for all documentation. It is critically important that the operations specialist comply with para A4.3.2 and modify the Ops Number/JON to reflect program reimbursable funding versus the original funding.

A4.3. Squadron Operations Specialist.

A4.3.1. Squadron operations specialists are authorized to modify the Ops Number's billing Job Order Register listed JON on the computer only under the following circumstances. Bill all costs already incurred by the original mission to the newly designated program.

A4.3.2. The test/test support mission's original reimbursable program is changed to another reimbursable program.

A4.3.3. The non-test/test support mission is changed to a test/test support mission funded under a reimbursable program.

A4.4. AFFTC KC-135 Air Refueling Billing.

A4.4.1. For specific billing, upon reporting in on air refueling frequency, receivers pass call sign, tail number and JON (Mission symbols 04 or 05 use Ops Number prefixed with "X", others use clear text JON.) Except for emergencies, deny receivers air refueling if the above information is not provided. If a refueling mission's scheduled receiver cancels and the tanker must orbit or kill time until the next receiver, up to zero point five (0.5) hours (more in unique cases) of KC-135 time may be charged to cover the cost of launching. After that time, the charges begin for the next receiver. If an excessive

time will pass until the next receiver is scheduled, accomplish required proficiency activity (if money is available) or land. The standard charge for non-scheduled receivers will be zero point two (0.2) hours. The above receiver check-in procedures apply to Business Effort tankers as well.

A4.4.2. For air refueling missions (05R), enter the tanker Ops Number on the front of the AFTO Form 781. If portions of the mission revert to mission symbols 03, 06, 07 or 08, break the sortie using the INFLIGHT option in blocks 9 and 10 and the appropriate JON in block 6.

Note: If the mission symbol is 03, 06, 07 or 08 and different JONs will be charged for that time, a further break in block 6 must occur. Proficiency time for non-452 FLTS pilots will generally not be on overhead 06 JON (996TXX), causing a required break in block 6.

A4.4.3. The KC-135 aircraft commander is responsible for accomplishing the AFTO FM 781. On the back, record the receiver's call sign, tail number, Ops Number/JON, start billing time, stop billing time, hours/tenths hours, and fuel transferred. The total time charged to receivers on the back must equal the 05R time charged on the front. This procedure allows for automatic billing through standard AFTO FM 781 processing procedures.

Attachment 5

BRIEFING GUIDES

A5.1. General Briefing (Brief items applicable to Mission).

1. Roll call	2. Mission Security	3. Time Hack	4. Brief Description of primary mission a. Training requirements b. CRM Scenario Briefing - if required
5. Mission/Operations Number/ JON/Mission Symbol	6. Mission Times a. Station b. Start c. Takeoff d. Range e. ARCT f. Landing g. Crew duty day	7. Flight Lineup a. Aircraft commander b. Call sign 1. Lead 2. Chase 3. Tanker c. Aircraft assignment d. Flight position e. Lead and deputy f. Spares	8. Radio Frequencies a. Start b. Taxi c. Takeoff d. Mission frequency 1. Primary 2. Auxiliary 3. Backups e. Landing f. After landing
9. Aircraft a. Weight b. Center of gravity c. Stores/cargo/fuel load d. DD Form 365-4 e. Takeoff and landing data f. Specific aircraft differences	10. Weather a. Takeoff b. Landing c. Work Area/ Enroute d. Alternate	11. Status of Airfield/ Range Facilities and Mission Support (Chase/Tanker)	12. Aircraft and Armament Preflight

13. Taxi and Arming	14. Takeoff a. Runway b. Lineup c. Checks d. Signals e. Interval f. Departures 1. Type (SID, radar, etc.) 2. Routes 3. Terrain features 4. Ranges	15. After Takeoff a. Checks b. Join Up	16. IFF Procedures
17. Joker, Bingo, and Divert Fuel for each Aircraft	18. Recovery and Landing a. Formation Breakup b. Descent/Approach 1. Type (VFR, inst, etc.) 2. Terrain features c. Type of pattern d. Checks	19. After landing a. De-arming b. Taxi c. Parking	20. Emergency Procedures a. Radio Failure b. Hydraulic, electrical, fuel, oxygen, engine (HEFOE) systems c. Takeoff emergency airspeeds d. Jettison areas e. Bailout/ejection f. Hot brakes g. Aircraft ditching

21. Special Subjects a. Lost wingman b. Egress, survival and life support systems. (KC-135 aircraft, check required life support equipment on board c. Aircraft intercom failure, emergency and bailout procedures, exchange of aircraft control and configuration changes.	21 cont. d. Crew coordination/duties (CP, nav, etc.) e. Enroute terrain features, MEA, MOCA. f. Alternate airfields g. Lakebed status h. Hazards to operations 1. AFFTC Forms 5028 and 5028a reviewed 2. Pertinent aircraft limits (“G”, speed, Machs, etc.)	21 cont. 3. Aircraft formation differences 4. T-38 Engine enevelope for forecast OAT (Flights above 25,000’) i. Midair avoidance j. Hi G/LOC k. Aircrew AFORMS product review (Training/ currency rqmts.) l. Air Refueling Procedures	22. Alternate Mission a. Mission card must be briefed to and approved by an authorized supervisor prior to flight.
23. Specific Mission Briefing a. Mission card must be briefed to and approved by an authorized supervisor prior to flight.	24. Passenger/ Noncrewmember Briefing	25. Local Area Briefing for Non-AFFTC crewmembers	26. Emergency Procedure of the Day

A5.2. Special Mission Briefing - - Non-Qualified Aircrews .

A5.2.1. Brief this in addition to the General and Specific Mission Briefings for personnel not qualified in the aircraft when that individual will occupy a mandatory crew position. You may cover applicable portions of this briefing during the premission briefing. Ensure applicable items are thoroughly covered after arriving at the aircraft. Expand and/or rearrange this checklist as necessary. Cover these mandatory items:

1. Hazards a. Physiological (relevant to flying with cold symptoms, sinusitis, etc.) b. Relevant to entering or departing aircraft 1. Engine inlet/ exhaust 2. Ejection Seat	2. Operation of Life Support Equipment a. Strapping in, seat adjustments b. Oxygen systems c. G-Suit operation and controls d. Inflight requirements e. Bailout/Egress	3. Environmental Controls a. Heating/Cooling b. Lighting	4 Communications Equipment, Controls, and Operation
5. Canopy/Door Controls	6. Hazards Unique to the Aircraft (point out switches/controls not to activate)	7. Actions in the Event of an Emergency a. Warning signals b. Location of circuit breakers c. Fire extinguishers and first aid kits d. Possible erratic aircraft maneuvers e. Review location of switches and controls to operate	7 (con't). f. Review of expected action/assistance in event of emergency 1. Check list response 2. Egress/Bailout 3. Oxygen Use

A5.3. Performance Or Stability And Control.

1.	2.	3.	4.
Departure a. Route b. Climb speed c. Primary work area (boundaries, terrain features, obstacles) d. Chase position	Test Card Briefing a. Test point b. Test technique c. Instrumentation procedures d. Chase position and duties	Flight Restrictions a. Airspace b. Altitude c. Airspeed d. Other aircraft limitations	Special Subject a. Center of gravity control procedures b. Hazardous test procedures and precautions (AFFTC FMs 5028 and 5028a reviewed) c. Recovery from out of control situations d. Go-No-Go decisions e. Alternate mission or tests f. Pertinent aircraft limitations g. Review of previous test results (if applicable) h. Expected test result i. Crew coordination/duties (CP, nav, etc.)

A5.4. Tower Flyby.

1.	2.	3.	4.
Mission Objectives	Data and Instrumentation Requirements a. Instrumentation preflight b. Ground blocks	Test Sequence and Procedures	Pattern and Variations for Aircraft Type a. Downwind b. Base c. Final
5.	6.	7.	7. cont.
Radio Calls for Data Acquisition and Radio Out Data Acquisition	Fuel Checks a. Timing b. Bingo	Special Subject a. Go-No-Go decisions b. Alternate mission or test c. Pertinent aircraft limitations d. Review of previous test results	e. Expected test results f. Work area (restrictions, boundaries, terrain features, obstacles) g. Crew coordination/duties (CP, nav. etc.)

A5.5. PACER.

1. Mission Objectives	2. Data and Instrumentation Requirements a. Instrumentation preflight b. Ground blocks	3. Test Sequence and Procedures	4. Pace Position
5. Radio Calls for Data Acquisition	6. Fuel Checks a. Timing b. Bingo fuel for each aircraft	7. Responsibilities of ATC Clearances	8. Special Subjects a. Go-No-Go decisions b. Alternate mission or tests c. Pertinent aircraft limitations d. Review of previous test results e. Expected test results f. Work area (restrictions, boundaries, terrain features, obstacles) g. Crew coordination/duties (CP, nav, etc.)

A5.6. Photo And Safety Chase.

1. Mission Objectives	2. Procedures	3. Data Requirements	4. Test Sequence
5. Chase Position Required for Photo Coverage and Safety	6. Hand Signals a. Normal b. Emergency	7. Specific Items to Watch and/or Photograph	8. Fuel Checks a. Amounts b. Time interval between c. Bingo fuel for each aircraft
9. Complete Mission Card - Supervisor Briefed (if hazardous test mission). (AFFTC FMs 5028 and 5028a reviewed)	10. Responsibilities for ATC Clearances	11. Photo Equipment a. Equipment suitable for required photos b. Equipment compatible with chase aircraft	12. Special Subjects a. Go-No-Go decisions b. Alternate mission or tests c. Pertinent aircraft limitations d. Review of previous test results e. Expected test results f. Work area (restrictions, boundaries, terrain features, obstacles) g. Crew coordination/duties (CP, nav, etc.)

A5.7. Safety Chase.

1. Mission Objectives	2. Procedures	3. Data Requirements	4. Test Requirements
5. Chase Position Desired	6. Hand Signals a. Normal b. Emergency	7. Specific Items to Watch	8. Fuel Checks a. Amounts b. Time interval between c. Bingo fuel for each aircraft
9. Complete Mission Card - Supervisor Briefed (if hazardous test mission). (AFFTC FMs 5028 and 5028a reviewed)	10. Responsibilities for ATC Clearances	11. Special Subjects a. Go-No-Go decisions b. Alternate mission or tests c. Pertinent aircraft limitations d. Review of previous test results e. Expected test results f. Work area (restrictions, boundaries, terrain features, obstacles) g. Crew coordination/duties (CP, nav, etc.)	

A5.8. USAF Test Pilot Shool Curriculum.

1. Mission Objectives	2. Data and Instrumentation Requirements a. Instrumentation preflight b. Ground blocks	3. Departure and Climb a. Route b. Climb airspeed c. Primary work area (restrictions, boundaries, terrain features, obstacles)	4. Curriculum and Briefing a. Demonstration/practice points b. Data bands/tolerances c. Test techniques d. Instrumentation procedures e. Numerical graded items
5. Flight Restrictions a. Airspace b. Altitudes c. Airspeed/mach number d. Aircraft/engine limitations	6. Special Subjects a. Recovery from out of control situations b. Go-No-Go decisions c. Alternate missions	cont. d. Review aircraft limitations e. Previous and expected test results f. Crew coordination/ duties (CP, nav, etc.)	

A5.9. Air Refueling.

1. Tanker Call Sign	2. Receiver Call Sign	3. Rendezvous Procedures	4. Communications Procedures, Frequencies, Beacon Setting
5. Air Refueling Control Point, Air Refueling Control Time, Track/Area, Heading, Altitude, Airspeed, Terrain, Features and Boundaries	6. Scheduled Onload/ Offload	7. Test Requirements	8. Review of Refueling TO for Applicable Aircraft
9. Special Subjects a. Go-No-Go Decisions b. Alternate mission or tests c. Pertinent aircraft limitations	9. cont. d. Review of previous test results e. Expected test results f. Crew coordination/ duties (CP, nav, etc.)	10. Emergency Procedures	11. Lost Wingman Procedures

A5.10. Range.

1. Ground Radio Checks a. SPORT b. DAGRAG	2. Enroute Procedures a. Route b. Climb speed c. Cruise altitude and airspeed d. Low level obstacles and terrain elevation e. Formation position	3. Range Entry Procedures a. Radio calls b. Clearance c. Formation position	4. Sequence of Events
5. Pattern Procedures a. Armament switch positions b. Mandatory radio calls c. Pattern spacing 1. Dive Angle 2. Base and release altitude 3. Base and release airspeed 4. Configuration 5. Power setting 6. MIL setting	6. Special Subjects a. Wind data b. Pullout technique c. Minimum altitudes d. Foul line e. Range boundaries f. Go-No-Go- decisions g. Alternate mission or tests h. Pertinent aircraft limitations i. Review of previous test results (if applicable) j. Expected test results	7. Arm/De-arm Procedures	8. Hung Bomb Procedures
9. Towing Aerial Targets	10. Crew Coordination/ duties (CP, nav, etc.)		

A5.11. Parachute Systems Test.

1. Engineering a. Mission Objectives 1. Engineering describes test item b. Requirements 1. Telemetry 2. Air-to-air photography 3. Radar 4. Go-No-Go 5. Surface wind cut-off 6. Recovery instructions 7. Trajectory information	1. cont. c. Applicable checklist and procedures (AFFTC FM 5028 and 5028a reviewed) d. Photo coverage 1. Photo chase position 2. Sequence of events requiring photography 3. On board camera coverage (events) e. Vehicle or load description 1. Weight, length, breadth, or diameter	1. cont. 2. Test parameters a. Airspeed b. Altitude c. Other 3. Separation 4. Debris, pilot chute, drogues and doors, etc. airborne during deployment	2. Operations a. Ground Operations 1. Airfield obstructions 2. Taxi routes 3. Run-up, quick check, TM calibration areas 4. Known traffic 5. NOTAM 6. Flight plan (DD FM 175 or AFMC FM 83) 7. Bingo fuel b. Range Procedures
2. cont. 1. Checkpoints for join up or radar acquisition 2. SPORT control for range clearance 3. Altimeter setting, as required 4. LAX ARTCC, as required 5. Bldg 1440 or MCF for telemetry checks, if required	2. cont. 6. SPORT for countdown 7. Relay test conditions, if required 8. Emergency procedures c. Alternate mission, if any d. Recovery procedures 1. Traffic patterns a. Jet b. Conventional reciprocating	2. cont. c. Helicopter d. Precautionary 2. Taxi routes, re-marshaling 3 Emergency - salvo and bailout areas e. Emergency of the day	

A5.12. Aircrew Local Area Briefing.

1. Overview a. Airfield layout 1. Flight guide 2. AFFTCI 11-1 b. Local Flying Area - Using local area map, point out: 1. Boundaries of R-2508 2. Altitudes a. Restricted Area b. ATCAA c. MOA 1. General aviation aircraft operate within the MOAs	cont. 3. Internal Restricted Areas and owners a. R2505/R2506 - NAWC, China Lake b. R2524 - NAWC, China Lake c. R2502 - NTC, Ft Irwin NOTE: DO NOT enter without prior approval 4. Work areas, Isabella, Owens, Saline, Panamint	cont. NOTE: Work areas include a combination of MOA, ATCAA, and Restricted Area. A Pancho Two clearance includes Isabella and Panamint at or below FL500, Owens and Saline at or below FL290, Barstow West MOA at or below FL500, and Barstow East MOA at or below FL230. Higher altitudes in Owens and Saline require 10 minutes prior coordination	cont. 5. Peripheral MOAs and ATCAAs a. Bakersfield, Deep Springs, Potterville, Shoshone, and Buckhorn NOTE: Schedule these areas, when required, in order to extend usable airspace 6. R2515, Special Use Areas, and Ranges a. PIRA/Alpha Corridor b. Spin Areas c. Supersonic Corridors
cont. d.. Cords Road e. Tower Flyby Line f. East/West Ranges g. Drop Zones h. Refueling Areas NOTE: Pilots are required to avoid areas identified as “HOT” 7. Dry Lake bed as VFR checkpoints for areas a. Koehn Lake b. Cuddeback Lake (SW of R2524)	cont. c. 3 Sisters (southern boundary of R2524 and relationship to Black Mtn Supersonic Corridor d. Coyote Lake and Barstow MOAs (explain Daggett Shelf) e. Harpers Lake f. Isabella g. Owens Lake h. Searles Lake - Trona Gap 8. Noise sensitive areas	cont. a. Isabella, Kernville and airport b. Sequoia National Park (MOA floor 3,000’ AGL or 3,000’ lateral) c. Domeland Wilderness Area (MOA floor 3,000’ AGL or 3,000’ lateral) d. Death Valley National Park (MOA floor 3,000’ AGL or 3,000’ lateral)	2. Departure Procedures 1. Flight planning, weather, and NOTAM information 2. Operations within R2515 are controlled by SPORT RCF a. Contact SPORT in last chance if remaining in R2515 3. Operations outside R2515 a. Transitioning to Isabella or Owens - exit between Mojave and Cal City if departing Rwy 22. b. Transitioning to Panamint - exit via Randsburg. Contact SPORT on departure

cont. c. Request assistance to avoid "HOT" areas (spin, etc.) 4. All operations are VFR 5. See and Avoid in VMC 6. Airways and NAVAIDs	3. Arrival Procedures 1. Outside R2515 - on RTB expect handoff to SPORT crossing R2515 boundary 2. Communications/ NORDO procedures	cont. 3. VFR traffic patterns and altitudes a. Low L/D approaches b. Shuttle approaches c. SFOs, straight-in or Overhead	cont. d. 45 to initial, offset, east shore, etc. e. South Base patterns 4. Emergency airfields 5. Lakebed operations a. Visual Illusions

A5.13. GLOC Aircrew Briefing.

1. GLOC Prevention Procedures All aircrews will perform the following maneuvers prior to exceeding a load factor of five (5) G's	2. Conditions 1. Airspeed - 350-450 KCAS 2. Altitude - 10,000'AGL or higher (recommended)	3. Preparation 1. Check G-suit a. Side zippers zipped b. Proper inflation (test button depress)	4. Procedures 1. First Pull - perform a 90× pull-up/turn using a smooth onset rate to four (4) to five (5) G's. 2. Second Pull - Accelerate and perform another (90× for air-to-ground, 180× for air-to-air) pull-up or turn using a smooth rate to five to seven (5-7) G's.
4. cont. NOTE: If you have not pulled seven (7) G's or greater within a week, build up smoothly and incrementally to seven (7) G's	5. Minimizing Procedures 1. Onset Rate - Avoid rapid onset (if possible) 2. Maneuver Sequence - Attempt lower G, higher altitude points first. 3. Exposure (configuration/ mission planning) - six to seven (6-7) G's maneuvers frequently to maintain proficiency	5. cont. 4. Airspace - Consider overwater ranges for runs at or below 5,000' MSL. 5. Altitudes a. Below 10,000' AGL - Maximize use of pull ups b. Below 5,000' AGL - Highlight SRB package and test cards.	6. Chase/Test Conductor Coordination 1. Prior to each maneuver: a. G-suit - Test b. Discuss with test conductor (1) Fatigue (2) Tolerance on previous maneuver (e.g. gray-out)
6. cont. 2. Maneuver Description: a. Entry b. During maneuver c. Recovery d. Maneuver Completion Call (1) Discuss specific words (e.g. test point complete	6. cont. (2) Action required if no completion call (3) Radio calls (use pilot name/callsign) (4) Direct proper control inputs (e.g. LEFT ROLL, STOP ROLL, PULL UP)	7. Maneuver Guidelines 1. BFM/ACM engagements (sustained maneuvering seven (7) G's - six (6) 2. Sustained high-G test points (seven (7) G's or more for more than five (5) sec) - eight (8)	7. cont. 3. Short duration high-G test points (seven (7) G's or more for less than five (5) sec) - 16 4. ROE-GLOC prevention guidelines are not a goal. If test pilot, test conductor, or chase feels mission should be stopped, then RTB

A5.14. Overseas Crew Briefing.

1. Itnerary 1. Include approved flight routes	2. Foreign and US border clearance procedures 1. Status of diplomatic overflight/landing requests	3. Protocol requirement	4. Foreign and US customs, immigration, agriculture, and required immunizations
5. Uniform and clothing restrictions	6. Airport facilities 1. Available lighting, oil, fuel, deicing, security, airstart and electrical power carts, etc.	7. Communications 1. ICAO rules and procedures and air traffic control procedures for each region the flight transits. 2. Enroute communications 3. NAVAIDS 4. Emergency procedures and frequencies	8. IFF/SIF procedures
9. NOTAM and FLIP changes	10. Authenticator requirements and proper procedures	11. Require Identification 1. Passports, visas, orders identification tags, etc.	12. Command approvals, if required
13. Available Quarters	14. Security Requirements	15. Emergency/Survival Equipment	16. Intelligence, local political and terrorist threat environment

Attachment 6

A6.1. Communications Frequencies.

Preset UHF/VHF Communications Frequencies

AFFTC Support Fleet/USAF Test Pilot School

Channel	UHF	VHF	Use
1	269.9	116.4	ATIS
2	304.0		CONFORM
3	390.1	121.8	EDW GND CONT
4	318.1	120.7	EDW TWR PRI
5	272.0	132.75	SPORT
6	335.6	134.05	JOSHUA (Isabella)
7	322.3	126.55	JOSHUA (Owens)
8	256.8	123.95	JOSHUA (Saline)
9	291.6	120.25	JOSHUA (Panamint)
10	354.4		AIR REFUEL
11	315.9		LOW LEVEL
12	340.2	120.15	NID TOWER
13	290.3	126.1	JOSHUA (PMD)
14	317.6	123.7	PMD TOWER
*15	286.4		MISSION
*16	294.6		MISSION
*17	297.4		TPS MISSION
*18	262.5		TPS MISSION
19	236.6		EDW TWR SECONDARY
20	308.7		SOF/TECH ASSIST

* Fleet support aircraft only. Flight Test Squadrons will provide their own aircraft frequencies.

Squadron/Organization Frequencies

Flight Test Squadron	Callsign	Primary	Secondary	Tertiary
410 FLTS	DAGGER OPS	322.7	226.6	
411 FLTS	RAPTOR OPS	373.5	139.775	
416 FLTS	ZOOM OPS	311.2		
418 FLTS	TIGER OPS	379.7	288.7	123.15
419 FLTS	TORCH OPS	276.65	279.9	
	B-1B	266.3	383.2	
	B-52	324.7	287.2	
	B-2			
	VORON OPS	315.2		
445 FLTS	EAGLE OPS	351.4	300.8	385.9
452 FLTS	ARIA OPS	267.8		
TPS	COBRA OPS	297.4	262.5	
NASA	NASA 4	371.1	135.825	
OL-HM	X-RAY CONTROL	290.7	138.0	

A6.2. General.

A6.2.1. Use and assignment of ground based call signs are as shown below:

AFFTC Operations Center	CONFORM
AFFTC Command Net	PONDEROSA
SPORT Radar Control Facility R-2515	SPORT

A6.2.2. Use and assignment of airborne call signs are as shown below:

AFFTC Command	EDDIE
USAF Test Pilot School	COBRA – Normal Operations AMMO – Student Crew Solo (No IP on board) DRAG – Low L/D (Shuttle or Lifting Body approaches)
410 Flight Test Squadron (F-117)	DAGGER
411 Flight Test Squadron (F-22)	RAPTOR
412 Flight Test Squadron (Speckled Trout)	TROUT
416 Flight Test Squadron (F-16)	ZOOM
418 Flight Test Squadron (C-12, C-17, C-141, C-130, T-39)	ARRIS
419 Flight Test Squadron (B-1, B-2, B-52)	TORCH
445 Flight Test Squadron (F-15, T-38)	EAGLE/RICK
452 Flight Test Squadron (C-135, C-18)	AGAR/RICK
Det 2, 412 OG	X-RAY
AFTI	AFTI
NASA	NASA
Northrop	TIGER
McDonnell Douglas	LITER/DACO/POGO
General Electric	SPARE
9th Operations Group, Det 2 (ACC)	ASPEN

A6.3. Procedures.

A6.3.1. Use numerical suffix assigned by the applicable organization. Formation flights may use the lead aircraft call sign or use the call sign of the individual aircraft.

Attachment 7

COORDINATES FOR R-2508 AREAS

A7.1. Geographical Coordinates For R-2508 Airspace Areas (All positional data. used here is based on North American Datum of 1983)

Altitudes: Altitudes and specific exceptions are noted beneath airspace descriptions. MOAs exclude airspace below 1500' AGL within three (3) nautical miles of public use airports listed under each of the following MOA descriptions.

A7.2. Major Work Areas (MOA, ATCAA, and R-2508 coordinates).

ISABELLA: Use Edwards AFB local Altimeter.

- Beginning at lat. 36° 08’00”N, long. 118°35’03”W;
- to lat. 36°08’00”N, long. 117°53’03”W;
- thence south and east along the boundary of R-2505 to lat. 35°39’15”N, long. 117°29’26”W;
- to lat. 35°21’00”N, long. 117°38’33”W;
- to lat. 35°19’20”N, long. 117°°38’33”W;
- thence along the western boundary of R-2515 to lat. 34°49’40”N, long. 118°05’48”W;
- to lat. 34°48’00”N, long. 118°05’48”W;
- to lat. 34°51’00”N, long. 118°14’03”W;
- to lat. 34°56’00”N, long. 118°21’03”W; to lat. 35°15’00”N, long. 118°35’03”W;
- to the point of beginning.

INYOKERN TRANSITION AREA:

- Beginning at lat. 35°41’30”N, long. 117°48’50W;
- To lat. 35°33’45”N, long. 117°47’20”W;
- To lat. 35°28’00”N, long. 117°47’03W;
- To lat. 35°28’15”N, long. 117°51’30”W;
- To lat. 35°19’00”N, long. 117°58’30”W;
- To lat. 35°06’20”N, long. 118°08’03”W;
- To lat. 35°03’50”N, long. 118°10’00”W;
- To lat. 34°50’00”N, long. 118°10’50”W;
- To lat. 34°51’00”N, long. 118°14’03”W;
- To lat. 34°56’00”N, long. 118°21’03”W;
- To lat. 35°05’40”N, long. 118°28’00”W;
- To lat. 35°13’25”N, long. 118°21’45”W;
- To lat. 35°25’55”N, long. 118°12’25”W;
- To lat. 35°40’20”N, long. 118°01’20”W;

- Thence to point of beginning.

The following three (3) areas divide the corridor by altitude and protect descent on the the Approaches:

WINDMILL AREA: Airspace from the southwest boundary of the corridor to a point four (4) NM southwest of the 25 NM fix from ALTIS. The protected airspace is from 11,000'MSL to 8,000'MSL. Complex aircraft can be at or below 7,000'MSL or at or above 12,000'MSL. Coordinates area:

- Beginning at lat. 35°06'20N, long. 118°08'03"W;
- To lat. 35°03'50"N, long. 118°10'00"W;
- To lat. 34°50'00"N, long. 118°10'50"W;
- To lat. 34°51'00"N, long. 118°14'03"W;
- To lat. 34°56'00"N, long. 118°21'03"W;
- To lat. 35°05'40"N, long. 118°28'00"W;
- To lat. 35°13'25"N, long. 118°21'45"W;
- Thence to point of beginning

RED ROCK: Airspace from four (4) NM southwest of the 25 NM fix from ATLIS to four (4) NM southwest of the 10 NM fix from ATLIS. The protected airspace is from 11,000' MSL to 7,000' MSL. Complex aircraft can be at or below 6,000' MSL or at or above 12,000' MSL. Coordinates are:

- Beginning at lat. 35°19'00"N, long. 117°58'30"W;
- To lat 35°06'20"N, long. 118°08'03"W;
- To lat. 35°13'25"N, long. 118°21'45"W;
- To lat. 35°25'55"N, long. 118°12'25"W;
- Thence to point of beginning

BRIDGE AREA: Airspace from four (4) NM southwest of the 10 NM fix from ATLIS to the northeast boundary of the corridor. The protected airspace is the 11,000' MSL to the surface. Complex aircraft may overfly at or above 12,000' MSL. Coordinates are:

- Beginning at 35°41'30"N, long. 117°48'50"W;
- To lat. 35°37'30"N, long. 117°45'00"W;
- To lat. 35°33'45"N, long. 117°47'20"W;
- To lat. 35°28'00"N, long. 117°47'03"W;
- To lat. 35°28'15"N, long. 117°51'30"W;
- To lat. 35°19'00"N, long. 117°58'30"W;
- To lat. 35°25'55"N, long. 118°12'25"W;
- To lat. 35°40'20"N, long. 118°01'20"W;
- Thence to point of beginning

ALTITUDES: Floor begins at 200 feet AGL. Excluding that airspace up to and including 3,000 feet AGL over Domeland Wilderness Area as it existed in 1977; and excluding that airspace up to and including 1,500 feet AGL within a three (3) NM radius of the following airports: Rosamond, California City, Mountain Valley, Techachapi Kern County, Inyokern-Kern County, Kelso Valley Ranch, Flying S Ranch, Kern Valley, and Sacatar-Meadows; and excluding that airspace up to and including 4,800 feet MSL within a four point three (4.3) NM radius of Mojave Airport excluding that airspace east and parallel to a line one half (1/2) SM west of R-2515.

OWENS: Use China Lake Local Altimeter.

- Beginning at lat. 37°12’00”N, long. 118°35’03”W;
- to lat. 37°12’00”N, long. 118°26’03”W;
- to lat. 37°02’00”N, long. 118°20’03”W;
- to lat. 37°09’00”N, long. 118°00’03”W;
- to lat. 36°46’00”N, long. 118°00’03”W;
- to lat. 36°14’00”N, long. 117°36’03”W;
- thence along the northern and western boundaries of R-2505 to lat. 36°08’00”N, long. 117°53’03”W;
- to lat. 36°08’00”N, long. 118°35’03”W;
- to the point of beginning.

ALTITUDES: Floor begins at 200' AGL. Except 3,000' AGL floor over Kings Canyon National Park, Sequoia National Park, and John Muir Wilderness Area. Except 1,500' AGL within a three (3) NM radius of the following airports: Lone Pine and Independence.

BISHOP MOA: Use Bishop Local Altimeter when in use by Oakland Center. Use China Lake Local Altimeter when in use by JOSHUA/Los Angeles Center.

- Beginning at lat. 37°12’00”N, long. 118°26’03”W;
- to lat. 37°12’00”N, long. 118°26’03”W;
- to lat. 37°12’00”N, long. 118°00’03”W;
- to lat. 37°09’00”N, long. 118°00’03”W;
- to lat. 37°02’00”N, long. 118°20’03”W;
- to the point of beginning.

ALTITUDES: Floor begins at 200' AGL to but not including FL180.

SALINE: Use China Lake Local Altimeter.

- Beginning at lat. 37°12’00”N, long. 118°00’03”W;
- to lat. 37°12’00”N, long. 117°20’03”W;
- to lat. 36°30’00”N, long. 116°55’03”W;
- to lat. 36°30’00”N, long. 117°48’03” W;
- to lat. 36°46’00”N, long. 118°00’03”W;
- to the point of beginning.

ALTITUDES: Floor begins at 200' AGL. Except 3,000' AGL over Death Valley National Monument as boundary existed in 1977 south and east of a line:

- Beginning at lat. 37°01’19N, long. 117°13’39”W;
- to lat. 37°01’19”N, long. 117°13’50”W;
- to lat. 37°50’01”N, long. 117°18’54”W;
- to lat. 37°05’05”N, long. 117°33’47”W;
- to lat. 36°58’57”N, long. 117°33’47”W;
- to lat. 36°58’56”N, long. 117°34’05”W;
- to lat. 36°53’55”N, long. 117°34’11”W;
- to lat. 36°53’51”N, long. 117°35’16”W;
- to lat. 36°51’10”N, long. 117°35’16”W;
- to lat. 36°51’08”N, long. 117°36’20”W;
- to lat. 36°47’58”N, long. 117°36’18”W;
- to lat. 36°47’51”N, long. 117°37’07”W;
- to lat. 36°40’21”N, long. 117°37’08”W;
- to lat. 36°40’21”N, long. 117°36’03”W;
- to lat. 36°37’45”N, long. 117°36’05”W;
- to lat. 36°37’45”N, long. 117°31’44”W;
- to lat. 36°36’52”N, long. 117°31’44”W;
- to lat. 36°36’56”N, long. 117°30’53”W;
- to lat. 36°36’38”N, long. 117°30’26”W;
- to lat. 36°36’31”N, long. 117°29’54”W;
- to lat. 36°35’54”N, long. 117°29’43”W;
- to lat. 36°35’27”N, long. 117°28’59”W;
- to lat. 36°35’29”N, long. 117°28’41”W;
- to lat. 36°34’21”N, long. 117°28’32”W;
- to lat. 36°33’29”N, long. 117°28’45”W;
- to lat. 36°32’39”N, long. 117°30’16”W;

- to lat. 36°31’56”N, long. 117°30’08”W;
- to lat. 36°31’29”N, long. 117°28’20”W;
- to lat. 36°30’16”N, long. 117°25’34”W;
- to lat. 36°30’00”N, long. 117°25’35”W.

PANAMINT: Use China Lake Local Altimeter. (MOA, ATCAA, and R-2508 Coordinates)

- Beginning at lat. 36°30’00”N, long. 117°48’03”W;
- to lat. 36°30’00”N, long. 116°55’03”W;
- to lat. 35°34’30”N, long. 116°23’33”W;
- thence along the northern boundary of R-2502N, the eastern, northern, and western boundary of R-2524, and the northwestern boundary of R-2515 to lat. 35°19’20”N, long. 117°38’33”W;
- to lat. 35°21’00”N, long. 117°38’33”W;
- to lat. 35°39’15”N, long. 117°29’26”W;
- thence along the eastern and northern boundary of R-2505 to lat. 36°14’00”N, long. 117°36’03”W;
- to the point of beginning.

ALTITUDES: Floor begins at 200' AGL. Except 1,500' AGL within a three (3) NM radius of the following airport: Trona. Except 3,000' AGL over Death Valley National Monument as boundary existed in 1977 north and east of a line:

- beginning at lat. 36°30’00”N, long. 117°25’35”W;
- to lat. 36°29’46”N, long. 117°25’36”W;
- to lat. 36°27’14”N, long. 117°22’01”W;
- to lat. 36°25’41”N, long. 117°20’58”W;
- to lat. 36°25’34”N, long. 117°20’29”W;
- to lat. 36°26’16”N, long. 117°19’11”W;
- to lat. 36°25’00”N, long. 117°18’36”W;
- to lat. 36°25’10”N, long. 117°17’57”W;
- to lat. 36°24’15”N, long. 117°17’23”W;
- to lat. 36°23’48”N, long. 117°15’36”W;
- to lat. 36°13’57”N, long. 117°15’33”W;
- to lat. 36°13’55”N, long. 117°09’09”W;
- to lat. 36°08’44”N, long. 117°09’04”W;
- to lat. 36°08’40”N, long. 117°04’39”W;
- to lat. 36°06’58”N, long. 117°03’47”W;
- to lat. 36°05’54”N, long. 117°04’33”W;

- to lat. 36°05’28”N, long. 117°03’54”W;
- to lat. 36°01’42”N, long. 117°02’34”W;
- to lat. 36°58’53”N, long. 117°04’31”W;
- to lat. 36°58’37”N, long. 117°05’17”W;
- to lat. 35°57’13”N, long. 117°06’45”W;
- to lat. 35°55’23”N, long. 117°06’35”W;
- to lat. 35°54’11”N, long. 117°05’24”W;
- to lat. 35°53’10”N, long. 117°01’39”W;
- to lat. 35°52’54”N, long. 116°55’21”W;
- to lat. 35°47’44”N, long. 116°55’22”W;
- to lat. 35°47’44”N, long. 116°36’05”W;
- to lat. 35°39’03”N, long. 116°36’01”W;
- to lat. 35°39’03”N, long. 116°26’06”W.

A7.3. Peripheral Work Areas.

BARSTOW: Use Edwards AFB Local Altimeter.

- Beginning at lat. 35°07’00”N, long. 116°34’03”W;
- to lat. 35°01’20”N, long. 116°41’03”W;
- to lat. 34°56’20”N, long. 117°09’03”W;
- thence along the eastern border of R-2515 and the southern boundary of R-2502E to the point of beginning.

ALTITUDES: 200' AGL to but not including FL180.

BARSTOW WEST: (ATCAA Airspace FL 180 to FL 600)

- Beginning at lat. 35°06’30”N, long. 116°58’43”W;
- to lat. 35°08’45”N, long. 116°48’33”W;
- to lat. 35°07’00”N, long. 116°47’33”W;
- to lat. 34°58’30”N, long. 116°57’48”W;
- to lat. 34°56’20”N, long. 117°09’03”W;
- to the point of beginning.

BARSTOW EAST: (ATCAA Airspace FL180 to FL600)

- Beginning at lat. 35°07’00”N, long. 116°46’33”W;
- to lat. 35°07’00”N, long. 116°34’03”W;
- to lat. 35°01’00”N, long. 116°41’03”W;
- to lat. 34°58’30”N, long. 116°57’48”W;
- to the point of beginning.

BUCKHORN: Use Edwards AFB Local Altimeter. (MOA and ATCAA Coordinates)

- Beginning at lat. 34°49’40”N, long. 118°05’48”W;
- thence along southern boundary of R-2515 to lat. 34°51’17”N, long. 117°26’03”W;
- to lat. 34°49’30”N, long. 117°26’03”W;
- to lat. 34°46’30”N, long. 117°35’03”W;
- to lat. 34°46’00”N, long. 118°00’03”W;
- to lat. 34°48’00”N, long. 118°05’48”W;
- to the point of beginning.

ALTITUDES: 200' AGL to but not including FL600.

BAKERSFIELD: Use Edwards AFB Local Altimeter. (MOA and ATCAA Coordinates)

- Beginning at lat. 35°40’00”N, long. 118°51’03”W;
- to lat. 35°40’00”N, long. 118°35’03”W;
- to lat. 35°15’00”N, long. 118°35’03”W;
- to lat. 34°56’00”N, long. 118°21’03”W;
- to lat. 35°14’00”N, long. 118°42’03”W;
- to the point of beginning.

ALTITUDE: 2,000' AGL to but not including FL600.

PORTERVILLE: Use China Lake Local Altimeter. (MOA and ATCAA Coordinates)

- Beginning at lat. 36°08’00”N, long. 119°00’03”W
- to lat. 36°08’00”N, long. 118°35’03”W;
- to lat. 35°40’00”N, long. 118°35’03”W;
- to lat. 35°40’00”N, long. 118°51’03”W;
- to the point of beginning.

ALTITUDES: 2,000' AGL to but not including FL600.

SHOSHONE: Use China Lake Local Altimeter. (MOA Coordinates below FL180)

- Beginning at lat. 36°30’00”N, long. 116°55’03”W;
- to lat. 36°30’00”N, long. 116°47’03”W;
- to lat. 36°06’00”N, long. 116°18’03”W;
- to lat. 35°39’00”N, long. 115°53’03”W;
- to lat. 35°18’45”N, long. 116°18’48”W;
- to lat. 35°28’35”N, long. 116°18’48”W;
- to lat. 35°34’30”N, long. 116°23’33”W;
- to the point of beginning.

ALTITUDES: 200' AGL to but not including FL180. Except 1,500' AGL within a three (3) NM radius of the following airport: Shoshone. Except 3,000' AGL over Death Valley National Monument as boundary existed in 1977 north and west of a line:

- Beginning at lat. 35°39’03”N, long 116°26’06”W;
- to lat. 35°39’03”N, long. 116°21’48”W;
- to lat. 35°48’14”N, long. 116°21’49”W;
- to lat. 35°48’11”N, long. 116°29’41”W;
- to lat. 35°52’17”N, long. 116°29’43”W;
- to lat. 35°52’18”N, long. 116°29’22”W;
- to lat. 35°58’22”N, long. 116°29’26”W;
- to lat. 35°58’23”N, long. 116°35’47”W;
- to lat. 36°10’08”N, long. 116°35’47”W;
- to lat. 36°10’11”N, long. 116°38’58”W;
- to lat. 36°17’57”N, long. 116°39’01”W;
- to lat. 36°17’58”N, long. 116°40’33”W;
- to lat. 36°18’30”N, long. 116°41’05”W;
- to lat. 36°24’54”N, long. 116°41’04”W;
- to lat. 36°24’54”N, long. 116°40’51”W.

SHOSHONE NORTH: (ATCAA Airspace FL 180 to FL 600)

- Beginning at lat. 36°30’00”N, long. 116°55’03”W;
- to lat. 36°30’00”N, long. 116°47’03”W;
- to lat. 36°06’00”N, long. 116°18’03”W;
- to lat. 35°44’15”N, long. 115°57’48”W;
- to lat. 35°28’35”N, long. 116°18’49”W;
- to lat. 35°34’30”N, long. 116°23’33”W;
- to the point of beginning.

SHOSHONE SOUTH: (ATCAA Airspace FL 180 to FL 600)

- Beginning at lat. 35°44’15”N, long. 115°57’48”W;
- to lat. 35°39’00”N, long. 115°53’03”W;
- to lat. 35°18’45”N, long. 116°18’49”W;
- to lat, 35°28’35”N, long. 116°18’49”W;
- to the point of beginning.

DEEP SPRINGS: (ATCAA Airspace FL 240 to FL 600)

- Beginning at lat. 37°12’00”N, long. 118°00’03”W;
- to lat. 37°30’00”N, long. 118°00’03”W;
- to lat. 37°30’00”N, long. 117°30’03”W;
- to lat. 37°12’00”N, long. 117°20’03”W;
- to the point of beginning.

Attachment 8

A8.1. This appendix lists the NAD-27 coordinates for several of the sites referred to previously in this document, and their coordinates converted to WGS-84. NAD-83 coordinates are basically the same as WGS-84, so they were not converted.

A8.2. Only coordinates which displayed a precision greater than 0.1 minutes were converted to WGS-84 because the difference amounts to an increase of approximately 0.054 minutes in longitude. Assuming that the original NAD-27 coordinates were rounded to 0.1 minutes, adding\0.054 to it and then rounding to 0.1 minutes would result in a value which was less accurate for half of the sites, on average.

A8.3. Coordinate Conversion.

Section	NAD-27 Coordinates	WGS-84 Coordinates	Description
2.9.4	35°36'0.0" 116°55'23.0"	35°35'59.9" 116°55'26.2"	ECR/R2524
	35°25'0.0" 116°55'23.0"	35°24'59.9" 116°55'26.2"	
	35°25'0.0" 117°26' 3.0"	35°24'59.9" 117°26' 6.2"	
	35°36'0.0" 117°26' 3.0"	35°35'59.9" 117°26' 6.2"	
2.9.5	35°47'46.0" 116°55'23.0"	35°47'45.9" 116°55'26.2"	MHV 82 North
	35°36' 0.0" 116°55'23.0"	35°35'59.9" 116°55'26.2"	Target Area
	35°36' 0.0" 117°16'55.0"	35°35'59.9" 117°16'58.3"	
	35°47'46.0" 117°16'55.0"	35°47'45.9" 117°16'58.3"	
2.11.4	35°15'56.0" 117°12'27.0"	35°15'55.9" 117°12'30.2"	Superior Valley
	35°24' 0.0" 117°12'27.0"	35°23'59.9" 117°12'30.2"	
	35°24' 0.0" 116°55'23.0"	35°23'59.9" 116°55'26.2"	
	35°15'56.0" 116°55'23.0"	35°15'55.9" 116°55'26.2"	
2.12.1	35°37’30” 117°35’33”	35°33’29.9” 117°35’36.2	Trona Corridor CFA
	35°40’30” 117°25’03”	35°40’29.9” 117°25’6.2”	
	35°36’00” 117°16’55”	35°35’59.9” 117°16’58.2”	
	35°27’40” 117°26’03”	35°27’39.9” 117°26’6.2”	
Fig2-13	35°48' 0.0" 117° 0' 0.0"	35°47'59.9" 117° 0' 3.2"	Echo Bypass
	35°48' 0.0" 116°55'23.0"	35°47'59.9" 116°55'26.2"	
	35°15’ 0.0” 117° 00’00”	35°14’60.0” 117°00’03.2”	
	35°15’ 23” 116° 55’23”	35°14’60.0” 116°55’26.2”	

2.13.3	35° 3'4 3.8" 117°59'37.2"	35° 3'43.7" 117°59'40.5"	Viper Range
Fig3-1	36°41' 4.1" 118°34.989'	36 41.067' 118 35.041'	MITEL
	36°34'20.0" 118°35.342'	36 34.331' 118 35.394'	KIOTE
	36°16' 0.0" 118°35.023'	36 15.998' 118 35.075'	SWOOP
		36 21 29.9 116 51 6.2	JENID
		37 11 59.8 117 38 36.3	HAMBO
		34 51 9.0 118 12 26.2	ROSIE
		35 14 59.9 118 34 33.3	CHADS
		36 51 29.9 116 32 21.1	HEINY
		36 55 29.8 117 10 36.2	HARNE
		34 58 45.0 116 57 3.1	DAGGS
		34 48 59.9 118 35 6.3	ROMOF
4.9.1	34°49'35.0" 117°52'40.0"	34°49'35.0" 117°52'43.3"	Survival School DZ
4.9.2	34°47'30.0" 117°57' 1.0"	34°47'29.9" 117°57' 4.3"	Farm Drop Zone
4.9.3	34°48'10.0" 118° 4' 0.0"	34°48'10.0" 118° 4' 3.3"	Housing Area DZ
8.3.1	34°45'41.0" 118° 8'23.0"	34°45'41.0" 118° 8'26.3"	Alpha Corridor
	34°49'41.0" 118° 8'23.0"	34°49'40.9" 118° 8'26.3"	
	34°50'15.0" 117°58' 0.0"	34°50'14.9" 117°58' 3.3"	
	34°53'18.0" 117°48'12.0"	34°53'17.9" 117°48'15.2"	
	34°48'15.0" 117°49'45.0"	34°48'14.9" 117°49'48.2"	
	34°48'15.0" 117°53' 0.0"	34°48'14.9" 117°53' 3.2"	
8.4.2	34°53'18.0" 117°38'55.0"	34°53'17.9" 117°38'58.3"	West Range
	34°49'20.0" 117°38'55.0"	34°49'20.0" 117°38'58.3"	
8.4.3	34°49'17.0" 117°31'30.0"	34°49'17.0" 117°31'33.2"	East Range
	34°49'21.0" 117°38'56.0"	34°49'20.9" 117°38'59.2"	
	34°53'13.0" 117°38'56.0"	34°53'13.0" 117°38'59.2"	
	34°51'45.0" 117°37'28.0"	34°51'44.9" 117°37'31.3"	
	34°51'45.0" 117°36'42.0"	34°51'44.9" 117°36'45.2"	
	34°53'45.0" 117°36'42.0"	34°53'44.9" 117°36'45.2"	
	34°53'45.0" 117°37'53.0"	34°53'44.9" 117°37'56.2"	
	34°57'17.0" 117°37'53.0"	34°57'16.9" 117°37'56.2"	

	34°58'17.0" 117°39' 5.0"	34°58'16.9" 117°39' 8.2"	
	34°59' 0.0" 117°38'12.0"	34°58'59.9" 117°38'15.2"	
	34°58'58.0" 117°32'26.0"	34°58'58.0" 117°32'29.2"	
	34°56' 8.0" 117°31'30.0"	34°56' 8.0" 117°31'33.2"	
8.8.2	35° 2'20.0" 118° 0'15.0"	35° 2'19.9" 118° 0'18.3"	North RADFAG
9.3.1	34 50.167' 118 5.750'	34 50.166' 118 5.805'	PIRA Supersonic Area
	34 53.267' 117 48.733'	34 53.266' 117 48.788'	
	34 53.267' 117 31.500'	34 53.266' 117 31.554'	
	34 49.267' 117 31.500'	34 49.266' 117 31.554'	
	34 49.267' 117 48.733'	34 49.266' 117 48.788'	
	34 48.000' 118 1.000'	34 47.999' 118 1.055'	
	34 49.667' 118 5.750'	34 49.666' 118 5.805'	
9.4.1	34 56.350' 119 10.767'	34 56.348' 119 10.823'	High Altitude
	35 32.383' 114 41.267'	35 32.383' 114 41.316'	Supersonic Corridor
	35 17.650' 114 38.833'	35 17.650' 114 38.883'	
	34 41.667' 119 7.483'	34 41.665' 119 7.540'	
10.4.13	36 56.250' 117 10.083'	36 56.247' 117 10.138'	Panamint Valley

10.7.1	Pt1	34 52.180' 117 33.430'	34 52.179' 117 33.484'	Dry lake by Ask-15 site/#88
	Pt2	34 57.250' 117 7.700'	34 57.249' 117 7.753'	Hill in Barstow Cx/#89
	Pt3	35 21.600' 117 53.200'	35 21.598' 117 53.255'	Saltdale (abandoned bldgs on NW Koehn Lake/#109
	Pt4	35 44.800' 118 7.400'	35 44.798' 118 7.455'	Walker Pass, Gravel Pit/#90
	Pt5	36 25.800' 117 49.420'	36 25.797' 117 49.475'	Rd X E. Owens Lake/#91
	Pt6	36 24.120' 117 24.500'	36 24.117' 117 24.555'	N. Panamint Lake hill/#38
	Pt7	35 38.500' 117 4.450'	35 38.498' 117 4.504'	Convoy hill in R-2524/#46
	Pt8	35 7.520' 117 36.340'	35 7.519' 117 36.394'	Hwy. 395/Block House/#21
	Pt1	36 37.800' 117 59.300'	36 37.797' 117 59.356'	W. Slope Inyo Mtn Range/#105
	Pt2	37 3.380' 118 13.580'	37 3.376' 118 13.636'	NW end Tinemaha Dam/#104
	Pt3	37 0.900' 117 54.600'	37 0.896' 117 54.656'	Mtn cabin 1.5 mi E. of Rd/#103
	Pt4	36 28.990' 117 35.800'	36 28.987' 117 35.855'	Water tank 2 mi S. of Road (Wilson Ranch

10.7.2	Pt1	35 9.920' 117 51.290'	35 9.919' 117 51.345'	Cal City tank/#40
	Pt2	35 29.250' 117 38.290'	35 29.248' 117 38.344'	RR Y Searles station/#25
	Pt3	35 44.610' 117 19.500'	35 44.608' 117 19.554'	Searles Lake storage yard center large bldg/#64
	Pt4	36 2.040' 117 16.140'	36 2.038' 117 16.194'	Radar site at Ballarat/#26
	Pt5	36 23.070' 117 24.220'	36 23.067' 117 24.275'	N. Lake Hill, Panamint/#65
	Pt6	36 28.590' 118 0.860'	36 28.587' 118 0.916'	Bartlett mine (abandoned) Owens Lake/#67
	Pt7	36 18.830' 118 12.390'	36 18.827' 118 12.446'	Templeton Mtn/#68
	Pt8	36 6.580' 118 29.060'	36 6.577' 118 29.116'	Needles Lookout Tower/#69
	Pt9	35 42.340' 118 33.520'	35 42.338' 118 33.576'	Microwave Tower Hill West of Isabella/#70
	Pt10	35 15.000' 118 15.000'	35 14.998' 118 15.055'	Emerald Mountain
	Pt1	36 28.990' 117 36.560'	36 28.987' 117 36.615'	2 mi. S. of Road/#44
	Pt2	37 0.900' 117 54.600'	37 0.896' 117 54.656'	Cabin 1.5 mi E. of Road/#103
	Pt3	37 3.380' 118 13.580'	37 3.376' 118 13.636'	NW end Tinemaha Dam/#104
	Pt4	36 37.800' 117 59.300'	36 37.797' 117 59.356'	W. Slope Inyo Mtn Range/#105
	Pt11	35 2.200' 118 18.700'	35 2.199' 118 18.755'	Mojave Cement Plant/#98
	Pt12	34 49.140' 117 53.480'	34 49.139' 117 53.534'	Water Tank at Sled Track/#35
10.7.3	Pt1	35 7.520' 117 36.340'	35 7.519' 117 36.394'	Blockhouse/#21
	Pt2	35 1.290' 118 1.300'	35 1.289' 118 1.355'	Relay Station/#56
	Pt3	35 38.780' 118 28.820'	35 38.778' 118 28.876'	Center of W Dam/#7
	Pt4	36 7.600' 118 27.300'	36 7.597' 118 27.356'	E. bend in river
	Pt5	36 28.100' 117 49.300'	36 28.097' 117 49.355'	Road X
	Pt6	37 3.020' 118 12.500'	37 3.016' 118 12.556'	SE tip of dam/See #104
	Pt7	37 5.600' 117 57.300'	37 5.596' 117 57.356'	E. Road bend
	Pt8	37 7.300' 117 43.400'	37 7.296' 117 43.456'	W. tip dry lake
	Pt9	36 41.800' 117 48.700'	36 41.797' 117 48.756'	Bldg S. of Salt Lake/See #96
	Pt10	36 24.120' 117 24.500'	36 24.117' 117 24.555'	N. lake hill/#38
	Pt11	35 39.200' 117 21.500'	35 39.198' 117 21.554'	SW tip Searles Lake/See #55
	Pt12	35 25.300' 117 40.300'	35 25.298' 117 40.354'	Road/RR crossing/See #16
10.7.4	Pt1	34 55.800' 117 53.200'	34 55.799' 117 53.254'	F-16 Ramp
	Pt2	34 54.800' 117 52.100'	34 54.799' 117 52.154'	Runway 22 TD Point
	Pt3	35 12.700' 117 45.200'	35 12.699' 117 45.254'	Hill TOS Hack
	Pt4	35 41.800' 117 22.800'	35 41.798' 117 22.854'	RR bend/See #55

	Pt5	36 3.200' 117 22.800'	36 3.198' 117 22.854'	Mine O'fly Fix
	Pt66	36 20.380' 117 25.340'	36 20.377' 117 25.395'	Rd X CCRP Wpn Del/#45
	Pt7	36 41.770' 117 49.480'	36 41.767' 117 49.536'	SW tip Salt Lake/#96
	Pt8	36 1.200' 118 14.700'	36 1.197' 118 14.756'	Alt Cal
	Pt9	35 52.000' 118 0.000'	35 51.998' 118 0.055'	Mt. Peak/road
	Pt10	35 28.600' 118 21.700'	35 28.598' 118 21.756'	Firewatch tower
10.7.5	Pt1	35 5.130' 117 56.290'	35 5.129' 117 56.345'	Peak of Desert Butte/#73
	Pt2	35 28.790' 117 40.940'	35 28.788' 117 40.994'	Laurel Mt. Radar/#23
	Pt3	34 59.060' 117 14.200'	34 59.059' 117 14.253'	Mountain Peak/#74
	Pt4	34 49.140' 117 53.480'	34 49.139' 117 53.534'	Water Tank at Sled Track/#35
	Pt5	35 6.620' 118 19.560'	35 6.619' 118 19.615'	Thpi Fwy/RR overpass/#31
	Pt6	35 42.340' 118 33.520'	35 42.338' 118 33.576'	Tower W Isabella/#70
	Pt7	36 6.600' 118 29.060'	36 6.597' 118 29.116'	Tower W. side/Needles/#69
	Pt8	36 18.830' 118 12.390'	36 18.827' 118 12.446'	Templeton Mtn/#68
	Pt9	36 44.200' 118 8.620'	36 44.196' 118 8.676'	Manzanar abandoned Runway X/#28
	Pt10	36 51.550' 117 52.690'	36 51.546' 117 52.746'	Danny's Mound/#27
	Pt11	36 24.120' 117 24.500'	36 24.117' 117 24.555'	N. lake hill/#38 (See #65)
	Pt12	36 2.040' 117 16.140'	36 2.038' 117 16.194'	Rdr W./Ballarat Lake/#26
	Pt13	35 34.630' 117 1.870'	35 34.629' 117 1.924'	Stor site E. end Aprt/#76
	Pt14	35 16.740' 117 23.890'	35 16.739' 117 23.944'	Bldgs S. Center of Cuddyback Aprt/#20
	Pt13a	35 46.050' 116 49.980'	35 46.048' 116 50.033'	Lost Lake/#54
10.7.6	Pt1	35 1.290' 118 1.300'	35 1.289' 118 1.355'	Hwy. 58 N. of RR bend/See #56
	Pt2	35 3.500' 117 49.000'	35 3.499' 117 49.054'	Clay Mine Road X
	Pt3	34 55.500' 117 41.000'	34 55.499' 117 41.054'	Mars Road 1 mi S. AFAL
	Pt4	34 55.500' 117 28.000'	34 55.499' 117 28.054'	Bldgs Kramer Hills
	Pt5	35 3.000' 117 20.000'	35 2.999' 117 20.054'	Harper Lake Road/RR X
	Pt6	35 12.000' 117 27.000'	35 11.999' 117 27.054'	Fremont Park Road
	Pt7	35 19.500' 117 51.000'	35 19.499' 117 51.055'	S. Shore Koehn Lake
	Pt8	35 25.500' 117 31.000'	35 25.499' 117 31.054'	Dome Mountain
	Pt9	35 22.500' 117 40.000'	35 22.499' 117 40.054'	Randsburg
	Pt10	35 6.870' 117 52.620'	35 6.869' 117 52.675'	Castle Butte/#22

12.5.2.1	34 57.917' 117 45.633'	34 57.916' 117 45.688'	Area 1
	34 57.433' 117 46.917'	34 57.432' 117 46.971'	
	34 58.833' 117 48.083'	34 58.832' 117 48.138'	
12.5.2.2	34 49.750' 117 57.667'	34 49.749' 117 57.721'	Area 2
	34 49.583' 117 59.417'	34 49.582' 117 59.471'	
	34 51.283' 117 59.867'	34 51.282' 117 59.921'	
12.5.2.3	34 58.083' 117 32.750'	34 58.082' 117 32.804'	Area 3
	34 56.083' 117 32.750'	34 56.083' 117 32.804'	
	34 56.083' 117 35.167'	34 56.083' 117 35.221'	
	34 58.083' 117 35.167'	34 58.082' 117 35.221'	
Fig13-2	34 56.750' 117 41.217'	34 56.749' 117 41.271'	1-120/1-B
	34 56.483' 117 41.233'	34 56.482' 117 41.287'	1-120/1-A/2A
	34 56.033' 117 41.700'	34 56.032' 117 41.754'	1-14
	34 56.817' 117 40.617'	34 56.816' 117 40.671'	1-125
	34 55.767' 117 39.183'	34 55.766' 117 39.237'	1-32
	34 53.617' 117 38.833'	34 53.616' 117 38.887'	1-42
	34 52.950' 117 38.117'	34 52.949' 117 38.171'	1-46
	34 52.550' 117 37.583'	34 52.549' 117 37.637'	1-52
	34 57.333' 117 38.667'	34 57.332' 117 38.721'	1-100
	34 56.033' 117 38.600'	34 56.032' 117 38.654'	1-36D
	34 55.933' 117 38.300'	34 55.932' 117 38.354'	1-36A
14.6.4.3	34 47.400' 117 57.010'	34 47.399' 117 57.064'	Alpha Corridor/Farm DZ
16.2.2	35 0.600' 117 59.250'	35 0.599' 117 59.305'	FCF/Maintenance Test Area
16.2.3.1	34 52.167' 118 7.000'	34 52.166' 118 7.055'	Red Hill LZ
	34 52.083' 118 7.450'	34 52.082' 118 7.505'	LZ Bowl
	34 54.683' 118 4.400'	34 54.682' 118 4.455'	Cameron Hill
	34 56.167' 118 6.833'	34 56.166' 118 6.888'	Rescue DZ
	34 54.417' 117 58.167'	34 54.416' 117 58.221'	LZ Slope
16.2.3.2	35 11.833' 118 16.300'	35 11.832' 118 16.355'	Area 1
	35 7.500' 118 16.300'	35 7.499' 118 16.355'	

35 7.500' 118 14.100'	35 7.499' 118 14.155'		
35 9.250' 118 14.100'	35 9.249' 118 14.155'		
35 9.250' 118 9.917'	35 9.249' 118 9.972'		
35 11.833' 118 9.917'	35 11.832' 118 9.972'		
35 45.000' 117 53.583'	35 44.998' 117 53.638'	Area 2	
35 45.000' 118 30.000'	35 44.998' 118 30.056'		
36 0.000' 118 30.000'	35 59.997' 118 30.056'		
36 0.000' 117 53.583'	35 59.998' 117 53.639'		
35 27.750' 117 57.750'	35 27.748' 117 57.805'	Area 3	
35 39.800' 117 53.000'	35 39.798' 117 53.055'		
35 45.500' 118 3.333'	35 45.498' 118 3.389'		
35 34.750' 118 14.500'	35 34.748' 118 14.555'		
FigA1-1 35 0.333' 117 51.000'	35 0.332' 117 51.054'	ROA Work Area/Corridor	
35 0.000' 117 47.250'	34 59.999' 117 47.304'		
34 59.333' 117 52.750'	34 59.332' 117 52.804'		
34 59.333' 117 47.250'	34 59.332' 117 47.304'		
34 58.333' 117 48.000'	34 58.332' 117 48.054'		
34 57.417' 117 50.333'	34 57.416' 117 50.388'		
34 57.000' 117 52.750'	34 56.999' 117 52.804'		
34 56.667' 117 52.250'	34 56.666' 117 52.304'		
34 54.917' 117 45.250'	34 54.916' 117 45.304'		
34 54.000' 117 47.583'	34 53.999' 117 47.638'		

A2.1	1	34 37.910' 118 3.770'	34 37.909' 118 3.825'	PMD TACAN	Palmdale
	2	34 48.300' 118 51.600'	34 48.299' 118 51.656'	GMN TACAN	Gorman
	3	35 13.600' 119 28.700'	35 13.598' 119 28.757'	E. end Tank Farm	EHF 020/21
	4	34 56.700' 118 49.500'	34 56.699' 118 49.556'	Pump Station	GMN 356/9
	5	34 47.300' 118 34.800'	34 47.299' 118 34.855'	Rd Bridge over Aquaduct	GMN 078/14
	6	35 7.340' 118 22.240'	35 7.339' 118 22.295'	Cntr Lg Bldg Cement Plnt	EDW 270/38
	7	35 38.780' 118 28.820'	35 38.778' 118 28.876'	Center of W Dam	PTV 105/31 Green 3
	8	35 39.500' 118 13.500'	35 39.498' 118 13.555'	Onyx Peak	NID 250/26
	9	35 44.300' 117 59.780'	35 44.298' 117 59.835'	Owens Peak	NID 265/15
	10	35 59.230' 117 55.060'	35 59.228' 117 55.115'	Red Hill Peak	NID 312/21

11	36 6.620' 117 57.340'	36 6.617' 117 57.395'	Power house	NID 327/28
12	35 50.970' 117 52.360'	35 50.968' 117 52.415'	Sawmill	NID 301/13
13	34 21.400' 118 52.800'	34 21.399' 118 52.856'	FIM TACAN	Fillmore
14	34 41.500' 119 21.500'	34 41.499' 119 21.557'	Road Bridge over Creek	Out of R-2508
15	35 18.730' 117 59.160'	35 18.728' 117 59.215'	Road Int X	EDW 313/23
16	35 24.100' 117 40.840'	35 24.098' 117 40.894'	Substation	NID 163/18
17	35 26.600' 117 38.100'	35 26.598' 117 38.154'	Water tank	NID 154/15
18	35 41.800' 117 12.800'	35 41.798' 117 12.854'	E. Searles Mine	NID 073/23
19	35 30.130' 117 5.470'	35 30.129' 117 5.524'	Missile Trailer	NID 095/31
20	35 16.740' 117 23.890'	35 16.739' 117 23.944'	Bldg Cuddyback Afld	NID 134/28 Amber 14
21	35 7.520' 117 36.340'	35 7.519' 117 36.394'	Block house	EDW 021/10 Red 8 Green 1
22	35 6.870' 117 52.620'	35 6.869' 117 52.675'	Peak-Castle Butte	EDW 302/11
23	35 28.760' 117 40.940'	35 28.758' 117 40.994'	Laurel Mtn Radar	NID 162/21 Amber 2
24	35 34.300' 117 25.800'	35 34.298' 117 25.854'	Tank Farm	NID 103/15
25	35 29.250' 117 38.290'	35 29.248' 117 38.344'	RR "Y" Searles	NID 152/12 Blue 2
26	36 2.040' 117 16.140'	36 2.038' 117 16.194'	Ballarat Radar	NID 029/20 Blue 4 Amber 12
27	36 51.550' 117 52.690'	36 51.546' 117 52.746'	Peak-Danny's Mound	BTY 258/55 Amber 10
28	36 44.200' 118 8.620'	36 44.196' 118 8.676'	Manzanar Aprt Rnwy cntr	BTY 258/68 Amber 9
29	36 13.760' 117 57.820'	36 13.757' 117 57.875'	Dam N. end Haiwee Resv	NID 322/35
30	35 32.850' 117 55.850'	35 32.848' 117 55.905'	Bldgs-Robbers Roost	NID 228/15
31	35 6.620' 118 19.560'	35 6.619' 118 19.615'	Rd/RR overpass	EDW 270/30 Amber 5
32	34 52.190' 118 7.040'	34 52.189' 118 7.095'	Red Hill	EDW 235/20
33	35 0.370' 117 52.820'	35 0.369' 117 52.874'	Rd/RR overpass	EDW 267/8
34	34 50.330' 117 42.170'	34 50.329' 117 42.224'	Jackrabbit Hill	EDW 196/9
35	34 49.140' 117 53.480'	34 49.139' 117 53.534'	Water tower Sled Track	EDW 204/14 Blue 12 Amber 4
36	34 57.090' 118 9.530'	34 57.089' 118 9.585'	Bridge	EDW 250/21

37	36 49.220' 118 12.010'	36 49.216' 118 12.066'	Independence Airport	BTY 255/70
38	36 24.120' 117 24.500'	36 24.117' 117 24.555'	Pk N. Lake Hill Panamint	BTY 217/40 Red 6 Amber 11 Green 10
39	35 31.400' 117 18.230'	35 31.398' 117 18.284'	Radar Site/Trailer Complex	NID 102/21
40	35 9.920' 117 51.290'	35 9.919' 117 51.345'	Cal City Tank	EDW 316/13 Blue 1
41	34 51.880' 117 36.950'	34 51.879' 117 37.004'	Haystack Butte	EDW 127/9
42	35 31.170' 117 17.700'	35 31.168' 117 17.754'	Hq Bldg Echo Range	NID 102/22
43	35 23.550' 117 47.780'	35 23.548' 117 47.835'	Rd/RR X	NID 180/19
44	36 28.990' 117 36.560'	36 28.987' 117 36.615'	Wilson Ranch	BTY 230.46 Black 1 or 4
45	36 20.380' 117 25.340'	36 20.377' 117 25.395'	Panamint Road Intx	BTY 214/43 Purple 6
46	35 38.500' 117 4.450'	35 38.498' 117 4.504'	Convoy Hill R-2524	NID 079/30
47	35 19.960' 117 31.530'	35 19.959' 117 31.584'	Cuddy Tank	NID 143/23
48	35 2.080' 117 40.000'	35 2.079' 117 40.054'	RR Munitions Lodge	EDW 031/4
49	35 14.100' 117 3.400'	35 14.099' 117 3.453'	Three Sisters	DAG 289/29
50	35 0.270' 117 33.970'	35 0.269' 117 34.024'	Solar Station	EDW 066/9
51	35 3.300' 118 9.800'	35 3.299' 118 9.855'	Mojave Airport	EDW 267/22
52	35 50.680' 118 29.930'	35 50.677' 118 29.986'	Lookout tower	PTV 083/26
53	35 0.480' 117 43.100'	35 0.479' 117 43.154'	Rest Area N. of Highway	EDW 009/2
54	35 46.050' 116 49.980'	35 46.048' 116 50.033'	NW end Lost Lake	NID 067/42 Amber 13A
55	35 40.890' 117 23.430'	35 40.888' 117 23.484'	Little Hill Road Intx	NID 075/15
56	35 1.290' 118 1.300'	35 1.289' 118 1.355'	Microwave Tower	EDW 264/15 Brown 1 Green 2
57	35 20.630' 117 25.620'	35 20.629' 117 25.674'	Water tank	NID 132/24
58	34 26.700' 116 57.100'	34 26.700' 116 57.153'	Lucerne Val Road Intx	VCV 097/23
59	34 49.800' 116 41.620'	34 49.800' 116 41.673'	Newberry Intch	DAG 199/10
60	35 4.250' 116 24.690'	35 4.249' 116 24.742'	Mt Afton Intch	DAG 086/11
61	35 11.590' 116 17.950'	35 11.589' 116 18.002'	Peak	DAG 030/19

62	34 58.940' 117 43.910'	34 58.939' 117 43.964'	EDW TACAN	Edwards
63			Garden City Station	
64	35 44.610' 117 19.500'	35 44.608' 117 19.554'	Center Large Bldg	NID 063/18 Blue 3
65	36 23.070' 117 24.220'	36 23.067' 117 24.275'	Pk of Lk Hill Panamint	BTY 216/40 Blue 5
66	36 20.990' 117 43.450'	36 20.987' 117 43.505'	Lrg Bldg Wht Swan Mine	NID 342/40
67	36 28.590' 118 0.860'	36 28.587' 118 0.916'	Lrg Tank Bartlett Mine	NID 325/50 Blue 6
68	36 18.830' 118 12.390'	36 18.827' 118 12.446'	Peak Templeton Mtn	NID 310/45 Blue 7
69	36 6.580' 118 29.060'	36 6.577' 118 29.116'	Needles Lookout Tower	PTV 050/28 Blue 8 Amber 7
70	35 42.340' 118 33.520'	35 42.338' 118 33.576'	Tower (218')	PTV 133/26 Blue 9 Amber 6
71	34 51.910' 118 6.760'	34 51.909' 118 6.815'	Rosamond Lake/ Blvd X	EDW 234/20
72	34 55.380' 117 53.470'	34 55.379' 117 53.524'	Cntr Lrg Bldg B-1 CTF	EDW 230/9
73	35 5.130' 117 56.290'	35 5.129' 117 56.345'	Peak of Desert Butte	EDW 286/12 Amber 1
74	34 59.040' 117 14.090'	34 59.039' 117 14.143'	Peak	EDW 075/25 Amber 3
75	36 43.660' 118 8.850'	36 43.657' 118 8.906'	Center of bldg Manzanr	BTY 251/68
76	35 34.630' 117 1.870'	35 34.629' 117 1.924'	Center bldg E end Afld	NID 085/33 Amber 13
77	35 2.700' 116 7.700'	35 2.700' 116 7.752'	RR bridge	DAG 055/15
78	35 23.200' 116 7.700'	35 23.199' 116 7.752'	Road Intx	DAG 025/34 @B-14
79	35 50.900' 116 13.700'	35 50.899' 116 13.752'	Tecopa	DAG 002/56 @B-15
80	36 26.800' 116 16.500'	36 26.798' 116 16.553'	Road bend	BTY 127/31 @B-17
81	35 51.720' 117 44.090'	35 51.718' 117 44.145'	Road Intx	NID 332/11
82	36 8.210' 117 56.980'	36 8.207' 117 57.035'	Dam on resevoir	NID 319/30
83	36 16.900' 118 0.200'	36 16.897' 118 0.256'	Road Intx (Olancha)	NID 321/39

84	36 48.000' 116 44.800'	36 47.997' 116 44.854'	BTY TACAN	Beatty
85	36 54.000' 118 7.700'	36 53.996' 118 7.756'	Peak	BTY 260/67
86	36 36.700' 117 59.500'	36 36.697' 117 59.556'	Peak	BTY 244/61
87	34 50.300' 117 59.650'	34 50.299' 117 59.705'	Buckhorn	EDW 221/15
88	34 52.180' 117 33.430'	34 52.179' 117 33.484'	Dry Lake	EDW 115/10 Red 1
89	34 57.250' 117 7.700'	34 57.249' 117 7.753'	Hill	EDW 077/30 Red 2
90	35 44.800' 118 7.400'	35 44.798' 118 7.455'	Gravel Pit	NID 266/22 Red 4
91	36 25.800' 117 49.420'	36 25.797' 117 49.475'	Owens Road Intx	NID 337/45 Red 5
92	34 51.380' 117 45.370'	34 51.379' 117 45.424'	PB 10	EDW 176/08 PIRA
93	35 7.490' 118 11.090'	35 7.489' 118 11.145'	Gravel Pit	EDW 275/24
94	35 59.020' 117 55.060'	35 59.018' 117 55.115'	Base Red Hill	NID 312/21
95	37 5.080' 117 40.200'	37 5.076' 117 40.256'	Sand dune W tip dry lake	BTY 278/49
96	36 41.770' 117 49.480'	36 41.767' 117 49.536'	SW tip Saline (Salt) Lake	BTY 247/52 Purple 7
97	35 35.600' 117 46.830'	35 35.598' 117 46.885'	Base Lt Robbers Boost	NID 205/07
98	35 2.200' 118 18.700'	35 2.199' 118 18.755'	Cement plant	EDW 262/29 Blue 11
99	35 3.710' 117 23.330'	35 3.709' 117 23.384'	Base E. Harpers Butte	EDW 058/17
100	35 18.100' 118 7.000'	35 18.098' 118 7.055'	Jawbone Mine	EDW 296/29
101	34 58.250' 118 1.200'	34 58.249' 118 1.255'	RR station	EDW 255/13
102	35 33.070' 117 6.420'	35 33.069' 117 6.474'	Echo Road Intx	NID 090/29
103	37 0.900' 117 54.600'	37 0.896' 117 54.656'	Cabin	BTY 267/57 Black 2 or 3
104	37 3.380' 118 13.580'	37 3.376' 118 13.636'	NW end Tinemaha Dam	BTY 267/73 Black 2 or 3
105	36 37.000' 117 59.300'	36 36.997' 117 59.356'	W slope Inyo Mtn Range	BTY 245/62 Black 1 or 4
106	35 52.960' 117 53.340'	35 52.958' 117 53.395'	SE Rd/RR Intx of 2	NID 304/15
107	36 10.650' 118 27.500'	36 10.647' 118 27.556'	Castle Rock Peak	PTV 046/31

108	35 4.360' 117 55.610'	35 4.359' 117 55.665'	Peak Desert Butte	EDW 284/11
109	35 21.600' 117 53.200'	35 21.598' 117 53.255'	Saltdale	NID 192/22 Amber 3
110	35 27.100' 117 11.500'	35 27.099' 117 11.554'	Saddleback Robbers Mtn	NID 105/28
111	35 45.250' 116 58.150'	35 45.248' 116 58.204'	Windgate Butte	NID 068/35
112	35 53.720' 117 40.000'	35 53.718' 117 40.055'	Afld Lake Butte	NID 348/13
113	36 22.500' 117 23.900'	36 22.497' 117 23.955'	S. side Lake Hill	BTY 216/41
114	35 56.000' 117 13.470'	35 55.998' 117 13.524'	E. Chocolate Butte	NID 042/27
115	35 32.400' 117 18.100'	35 32.398' 117 18.154'	Cannon Butte	NID 100/21
116	34 50.900' 118 46.900'	34 50.899' 118 46.956'	Microwave Twr on Peak	GMN 047/05
117	35 0.200' 119 24.600'	35 0.198' 119 24.657'	Hairpin curve	EHF 090/23
118	35 14.100' 119 18.300'	35 14.098' 119 18.357'	NW end Lake	EHF 058/29
119	34 46.300' 118 44.200'	34 46.299' 118 44.256'	E end of Lake	GMN 092/06
120	35 16.100' 119 18.500'	35 16.098' 119 18.557'	Road bridge over canal	EHF 055/29
121	35 11.800' 119 42.800'	35 11.798' 119 42.857'	Road intx	EHF 035/10
122	34 47.900' 118 34.600'	34 47.899' 118 34.655'	Pond	GMN 077/14
123	34 54.950' 117 51.700'	34 54.949' 117 51.754'	TO Runway 22	EDW 223/08
124	34 53.700' 117 54.200'	34 53.699' 117 54.254'	TO Runway 4	EDW 223/10
126	34 53.160' 117 45.330'	34 53.159' 117 45.384'	PB-1	EDW 180/06 PIRA
127	34 55.800' 117 53.200'	34 55.799' 117 53.254'	Shutdown (F-16)	EDW 232/08
128	35 1.500' 117 16.500'	35 1.499' 117 16.554'	Center Harper lake	EDW 068/22
129	35 2.600' 117 40.000'	35 2.599' 117 40.054'	Boron Mines	EDW 024/05
130	35 16.500' 118 7.350'	35 16.498' 118 7.405'	Cross Mtn Saddle	EDW 297/26
131	35 36.620' 117 31.500'	35 36.618' 117 31.554'	Rands Rd Intx	NID 104/09
132	35 43.570' 116 42.340'	35 43.568' 116 42.393'	W end Owl Lake	NID 072/48
133	35 56.000' 117 13.470'	35 55.998' 117 13.524'	E Panamint Hill (rocks)	NID 041/27
134	35 54.830' 117 46.450'	35 54.828' 117 46.505'	W end Dry Lake (R-2505)	NID 327/15
135	36 50.280' 117 55.100'	36 50.276' 117 55.156'	Willow Creek Camp	BTY 257/57
136	36 55.600' 118 13.650'	36 55.596' 118 13.706'	Bend in aqueduct	BTY 261/71
137	37 10.000' 117 59.250'	37 9.996' 117 59.306'	Cowhorn Lake	BTY 275/64
138	36 21.580' 117 37.500'	36 21.577' 117 37.555'	Road Intx	NID 349/41
139	36 2.040' 117 16.820'	36 2.038' 117 16.874'	Road Intx	NID 029/29 @Blue 4

140	35 22.800' 118 13.500'	35 22.798' 118 13.555'	Center Kelso Runway	EDW 300/34
141	35 19.900' 118 23.000'	35 19.898' 118 23.055'	Caliente Hill Peak	EDW 287/39
142	35 17.130' 117 5.900'	35 17.129' 117 5.953'	Superior Valley Runway	DAG 290/31
143	35 36.080' 117 54.140'	35 36.078' 117 54.195'	Freeman	NID 230/12
144	36 27.030' 117 53.800'	36 27.027' 117 53.856'	Salt Plant	NID 333/47
145	36 56.340' 118 16.880'	36 56.336' 118 16.936'	Power station	BTY 260/74
146	37 12.190' 117 50.100'	37 12.186' 117 50.156'	N tip ridge	BTY 280/57
147	36 13.650' 117 58.010'	36 13.647' 117 58.065'	Aqueduct	NID 322/35
148	36 12.320' 118 11.710'	36 12.317' 118 11.766'	Peak Monache Mtn	NID 306/40
149	35 51.300' 118 30.300'	35 51.297' 118 30.356'	Lookout Tower	PTV 084/25
150	34 51.000' 117 44.700'	34 50.999' 117 44.754'	PB-9	EDW 171/08 PIRA
151	34 53.070' 117 40.990'	34 53.069' 117 41.044'	IR Board	EDW 144/06 PIRA
152	34 48.600' 117 55.000'	34 48.599' 117 55.054'	South Gate	EDW 207/14
153	35 0.040' 118 9.320'	35 0.039' 118 9.375'	Cement Plant	EDW 257/21
154	35 18.200' 118 25.700'	35 18.198' 118 25.756'	Small Knoll	EDW 284/40
155	35 44.700' 118 31.900'	35 44.698' 118 31.956'	Saddleback Mtn	PTV 099/25
156	35 43.700' 118 12.600'	35 43.698' 118 12.655'	Peak (Domeland Wild)	NID 260/26
157	34 51.200' 117 52.600'	34 51.199' 117 52.654'	Sewage Pond (EAFB)	EDW 199/11
158	35 4.870' 117 34.940'	35 4.869' 117 34.994'	Boron Radar	EDW 036/09
159	34 51.340' 117 43.100'	34 51.339' 117 43.154'	PB-8	EDW 163/08 PIRA
160	34 59.010' 117 51.880'	34 59.009' 117 51.934'	N Base Hangar	EDW 255/07
161	35 27.800' 117 37.600'	35 27.798' 117 37.654'	Searles Tunnel	NID 158/13
162	34 54.480' 118 9.800'	34 54.479' 118 9.855'	Highway bridge	EDW 243/22
163	34 52.000' 117 52.600'	34 51.999' 117 52.654'	S tip sewer lake	EDW 199/11
164	34 53.330' 117 43.420'	34 53.329' 117 43.474'	PB-2	EDW 165/05 PIRA
165	34 49.780' 117 47.590'	34 49.779' 117 47.644'	P-2	EDW 185/10
166	34 49.130' 117 51.310'	34 49.129' 117 51.364'	B-52s	EDW 199/12
167	34 59.730' 118 9.740'	34 59.729' 118 9.795'	Storage tanks	EDW 257/22
168	34 59.530' 117 32.410'	34 59.529' 117 32.464'	Kramer Junction	EDW 070/09
169	34 52.170' 117 46.410'	34 52.169' 117 46.464'	DAGRAG tower	EDW 185/07 PIRA

170	34 55.420' 117 53.920'	34 55.419' 117 53.974'	Wing HQ	EDW 234/09
171	35 0.010' 117 10.900'	35 0.009' 117 10.953'	Boat SE Harpers Lake	EDW
172	34 50.500' 117 51.300'	34 50.499' 117 51.354'	Runway Intx (Lake Bed)	EDW 200/10
173	34 55.350' 117 53.440'	34 55.349' 117 53.494'	Ridley	EDW 230/09
174	34 53.500' 117 41.300'	34 53.499' 117 41.354'	PB-3	PIRA
175	34 50.250' 117 36.200'	34 50.249' 117 36.254'	PB-5	PIRA
176	34 51.300' 117 45.300'	34 51.299' 117 45.354'	PB-10	PIRA
177	34 52.900' 117 35.900'	34 52.899' 117 35.954'	PB-11	PIRA
178	34 52.900' 117 34.300'	34 52.899' 117 34.354'	PB-12	PIRA